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Vol. XI.—No. 11.

NOVEMBER, 1898

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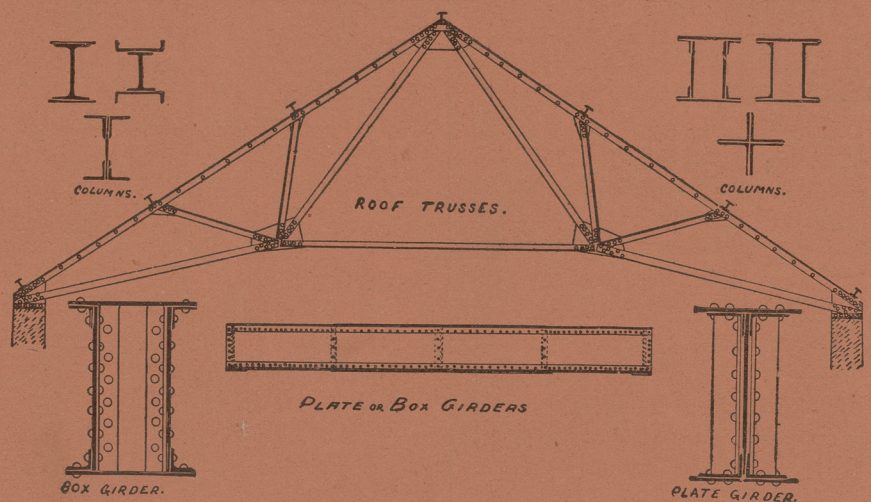
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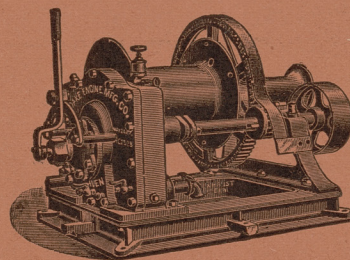
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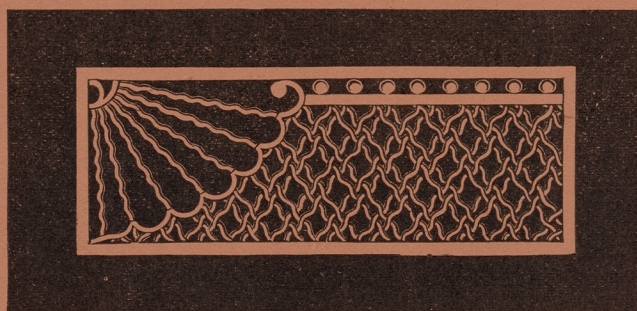
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—THE—

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THE agreement regulating prices entered into some time ago by the manufacturers of radiators in the United States, terminated in September. Thus far the manufacturing companies appear to have been unable to arrive at a satisfactory understanding on which to base a new agreement. The situation has resulted in a war of competition among the manufacturers, who, finding themselves encumbered with heavy stocks, are slaughtering their goods at almost any figures. It is stated that radiators are being sold in the American market as low as 12½ cents per pound. Unfortunately for Canadian manufacturers, large quantities of American radiators are being shipped into the Dominion, with the result that in this market also, prices have been forced down to a point where little or no margin of profit remains. This condition of affairs is largely due to the heavy duty and freight charges which Canadian manufacturers are required to pay on their raw material. As regards wages, United States manufacturers are said to have the advantage also. Formerly the standard of mechanics' wages was higher in the United States than in Canada, but this condition is now said to be reversed, wages having been forced down in the States by the competition of foreign labor. It is especially unfortunate for Canadian radiator manufacturers that they should be subjected to this unfair competition when a revival of building enterprise is being experienced, and when in consequence there is a brisk demand for their goods.

Province of Quebec Association of Architects.

CONSIDERABLE space is given in this number to an account of the proceedings of the eighth annual convention of the Province of Quebec Association of Architects held in the Association's rooms in Montreal on the 3rd and 4th inst. More than usual interest attached to this meeting, it being the occasion of the complete organization of the Association in accordance with the terms of the Quebec Architects' Act. The first day was entirely devoted to the presentation of reports, addresses by the outgoing and incoming presidents, election of officers for the ensuing year, consideration of amendments to the by-laws, and the annual dinner. The second day was spent in visits to the Architectural

Department of McGill University, ably presided over by Prof. S. H. Capper, the new building of Chemistry and Mining, McGill University, and the picture gallery in the residence of Hon. G. A. Drummond. The attendance at the business sessions numbered between fifty and sixty, the city of Quebec being well represented. A notable and encouraging feature of the meeting was the large attendance of the younger members of the profession, and the keen interest manifested by them in the proceedings. The value of these young men to the Association was suitably recognized by the election of two of their number as members of the Council. The Association has reason to feel proud of the position to which it has attained, one which in some respects is unique. Architecture in the Province of Quebec is now a close profession, and if the powers conferred on the Association are wisely used, as they no doubt will be, good results to the profession and the public may reasonably be expected to follow. Much credit is due those members, French and English, who from the beginning have loyally stood by the interests of the Association. The success which has crowned their efforts should stimulate those who shall be called on to direct the course of the Association under more favorable conditions in the future. With a Department of Architecture already well equipped at McGill University, students have ready at hand the means of qualifying themselves for the practice of the profession in compliance with the requirements of the law, and in the future if not the present they will be grateful for the work that their predecessors have accomplished for the elevation of an ancient and honorable profession.

THE correspondence in this number about the suitability of a lych gate for the entrance to a summer residence

when put together makes a plea in legal form : (a) The accused did not put up a lych gate. (b) A lych gate is a proper form of gate for a summer residence and the accused did right in putting it up.

It is with the latter proposition that we are concerned. The argument in its favor is stated in Mr. Bousfield's letter when he says : "The skill of an architect is to adapt features and details to present day requirements." This we consider to be a doctrine which does not make for the best art. Architecture is not a finished product, it is a process. On the whole there are few "features" characteristic of former generations that remain in use in the present time and can be imported bodily into modern work ; but the process by which they were produced is the same by which good architecture is produced now or ever will be produced. The architect in studying old work should study not how to reproduce a feature but how it came to be produced, as his business is to do, not the same, but likewise. If Mr. Bousfield had said "the skill of an architect is to make features of present day requirements just as the mediaeval designer did out of the requirements of his time," he would surely have stated the matter better.

As regards the lych gate in particular, the question is whether it has any real use. The days for a man to "speak with his adversary in the gate" have passed away with the Judges of Israel ; and there is no regular case of the selection of this place for intercourse between friends except when two young people hang over it

unable to make up their minds to part ; and this is not only no institution which should receive the countenance of a shelter, but such countenance would destroy the fiction that their delay is momentary. For the purpose of receiving friends on a summer evening one would have thought that the verandah is public enough and a degree more hospitable than the gateway. However, if any one wants to sit in his gateway by all means let him have a shelter. Even then it is not likely it would come out of the designer's hands closely resembling a lych gate which shelters only the roadway.

The Champlain Monument at Quebec.

THE statue of Champlain at Quebec, of which we have received a photograph, of which a reproduction appears in the illustration pages of this number, has all the marks of being a piece of high-class modern French art. It consists of an admirably proportioned pedestal, with the bronze symbolical group on the face which seems to be customary in French work of this kind, and on top a standing figure of Champlain. It is just such a piece of fresh yet classical design as one would find in the new part of a French town. The general characteristic of the monument is what one might call ornamental liveliness. Champlain, elegantly and without doubt correctly dressed in the fashion of his time, stands on top of a somewhat lofty pedestal ; his plumed hat in his hand is slightly waved forward and the opposite foot is slightly drawn back, as if he were about to salute the city of Quebec, towards which his face is turned. Below him Fame blows her long trumpet and spreads her wings over two other figures in bronze ; one a female figure with a battlemented crown (perhaps the city of Quebec), the other a naked symbolical boy stepping out of a boat of which the prow projects from the face of the pedestal. All is liveliness—a correct and academical liveliness which satisfies every requirement of municipal decoration. But where in all this is there any essential idea connected with Champlain. If it were not for the prow of the boat we should not know that Champlain was even a navigator, and the boat bears no resemblance to the canoes in which he made his explorations, nor is the naked boy with wings a native of this continent. As for the explorer himself, with his back to the river and his salutations to the city, he seems to have forgotten his former tastes. How much more suitable would have been a more serious figure, looking on the river, like Cortez, another discoverer, as Keats described him—staring at the Pacific, "silent upon a peak in Darien." As for accessories, if the honored dead had passed his life in sitting at a writing desk for the benefit of posterity, with no greater personal adventure than his death, it might be excusable to take refuge in Fame and her trumpet. But Champlain's was a life of adventure and travel. He endured hardships, and underwent adventures which should properly for their own sake be indicated by the accessories of his monument, and which, since they were associated with the primitive peoples and customs of this country, should the more be represented, so that the monument might be made an occasion for recording them in a striking and enduring form. But how are we to expect a foreign architect to be possessed by an idea of this kind? It was not the intention of this notice to strike a blow for native art, but the conclusion is irresistible that the most accomplished French artist is less likely to produce a work filled with the essential poetry of the situation than a native of

the country. And the monument would have historical value in a double sense if it were a piece of native work of the times in which the monument was set up, and filled with true native feeling, instead of being, what is all that can be expected from a foreigner, a piece of graceful generalization, which is about equivalent to saying a piece of graceful claptrap.

THE POETRY OF PLAN.

It was maintained in a previous article that true architecture is that which expresses the function of a building, and which acquires a character from the mode of construction and from the nature of the material employed. The present generation has made some progress towards the realization of true architecture as an expression of function in respect that it fully recognizes the importance of plan. It seems likely that in future histories of architecture the contribution made by this generation to the development of architecture will be estimated to be scientific planning. It is interesting to note how in works on planning there seems to be no such thing as hostility between practical recommendations and a result which appeals to the imagination as an artistic conception. The immediate result of careful and practical attention to considerations of aspect, prospect and combination is the production of a building which impresses itself as a definite organism; as, in fact, the embodiment of an idea and therefore a poetical creation. This is the fundamental part of the art of architecture.

Names are powerful conveyors of doctrine, and Ruskin made a serious slip when in seeking to establish a groundwork for advocating lavishness for its own sake, in *The Lamp of Sacrifice*, he confines the name Architecture to that which impresses on a building "characters venerable or beautiful, but otherwise unnecessary." He proposes, in this passage, to deny to battlements or machicolations the title to be considered architectural features "so long as they consist only of an advanced gallery supported on projecting masses, with open intervals beneath for offence. But if these projecting masses be carved beneath into rounded courses, which are useless, and if the headings of the intervals be arched and trefoiled, which is useless, that is Architecture." There is no mistaking the application of the name as he proposes it, but there is also no doubt of his appreciation of a feature like machicolations, which unadorned appeal as much to the painter or the poet as when carved, arched or trefoiled. It is a question of the use of a word, nothing more. It is well that this definition of Architecture has been criticized and will be better when we come to recognize—what Ruskin's critics, who are usually persons who wish to set aside his hatred of the Renaissance, do not—that the first and greatest thing in artistic building is plan, and that therefore this must be included under the name Architecture, taken as Ruskin proposes to take it, as the name of that art which makes building beautiful.

A well planned building is architecture in the largest sense, no matter how unornamented it may be, and it is well to call it so. Conversely, it is well to think of architecture as building. This is not to take the attitude that has been taken—or threatened—by some enthusiasts in England; to sweep away all traditional architectural ornaments and consider the beautifying of each portion of construction without reference to the way in which it has been treated before. These are the Preraphaelites

of Architecture, and will no doubt exercise a sound influence; suffering, like Englishmen, for their idea of right, and, in the end, compromising, like Englishmen, for something workable. It is not the intention of this article to deny the use of any, or of the whole body, of traditional forms of detail, but to affirm that they are not architecture any more than bricks are architecture. They are a kind of material which, with bricks and mortar and other materials, furnish the designer with the means of making a whole which is architecture.

It is possible to think of the whole creation without the mind taking note at all of the material of either construction or ornament. On the north-east coast of England, where there is a clear sweep for the wind straight from the Arctic Circle, there is one spot where the cliff by the sea, which already rises so much in that part as to cause the land to slope inwards from the sea, rises suddenly at one point so as to form a good sized hump. This is closely planted with trees. On the landward side at the base of the hump, where the trees stop, lies a long, low, white house, sheltered from the north-east winds and looking south over a lovely, sloping, English lawn, which comes right up to the bow windows of the drawing and dining rooms and extends southward a long way until it merges in a park. How different from this are the Newport "cottages," which look out to the sea and spread themselves in wide, open verandahs to catch all the air they can? Here there are two architectural conceptions, each of which impresses itself upon the mind as such without the consideration of details at all, nor of any features except such as are features in plan; in the one case, lowness to keep well down in shelter and bow windows to invite the sun; in the other case, spreading verandahs to get as much shade as possible without losing the air.

The town house is as reserved in character as the summer residence is expansive. It suits the character of this country that the facade should be attractive. We have no tradition that preserves the idea that a house is a place of safety from attack, so that we do not incline to turn a severely blank wall to the street and expand inwards in courts; but the metaphorical sense in which an Englishman's house is said to be his castle might find better expression than it usually does in the plan of town houses. Because houses of any importance are now seldom built in rows, but have ground enough to be free on all sides, they are too often modelled after a type which is almost as suitable for the country as for the town. All four sides seem sometimes to be thought equally good for windows, in spite of the fact that there is usually either an actual or a possible neighbour within a short distance of one side, and often of two. This might be thought to be an expression of the sociable character of people in this country, but as a matter of fact it is more the exception than the rule that next door neighbours know one another, nor is sociability the right word to apply to an indifference to forming one's toilet in public.

The progress of planning is likely to take more account of the dignity of privacy and result in a greater definiteness of character in the city house which will give it higher rank as an architectural conception.

There have been in the plans of large houses in the United States some evidences of a modified adoption of the French and Italian self contained plan. There are some important houses by well-known men which surround two or three sides of a court, open in its remaining portion to the street and the sun. If practical convenience and comfort is kept in view without effort to produce any distinct resemblance to the European house there can be no doubt that in this direction there is chance of producing an architectural plan.



(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

COUNCIL OF ARTS AND MANUFACTURES.

By the courtesy of the management I am enabled to present to your readers some particulars regarding the evening drawing and industrial classes at the Montreal School of the Council of Arts and Manufactures of the Province of Quebec, accompanied by illustrations showing specimens of the work of the pupils. There are classes in Freehand Drawing, Architectural and Mechanical Drawing, Boot and Shoe Pattern Making, Lithography, Modelling, Stair Building and Building Construction, and Plumbing. With the exception of the Mechanical Drawing class and the Plumbing class, which meet at 183 Congregation street and in the old St. Gabriel church, respectively, the classes are held in the Monument National, 218 St. Lawrence street.

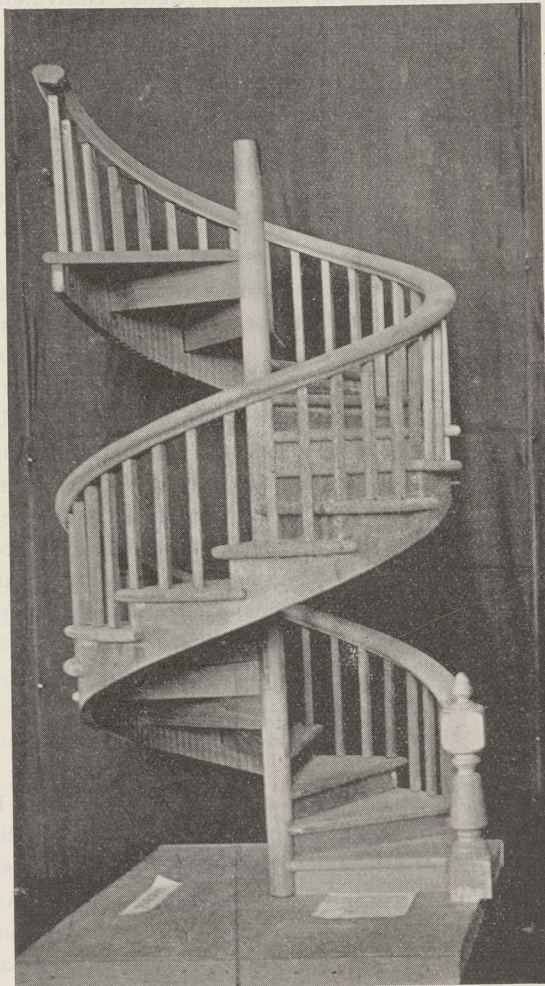
The Freehand Drawing class is divided into junior and senior sections, the former meeting on Mondays and Thursdays under the direction of Messrs. Joseph St. Charles and J. H. Egan. In this preparatory class the pupil begins by drawing differently shaped blocks, and progresses to more complicated forms. The method of drawing from solids is one which has been recognized by the leading European schools, as best adapted for the instruction of beginners.

The advanced Freehand Drawing class, which is under the direction of Mr. E. Dyonett, A.R.C.A. meets every Wednesday and Friday. After one year spent in the junior class, students graduate into the advanced class, and are put to drawing parts of the human figure from plaster casts. As progress is made more difficult subjects are presented, until the full length antique figure is reached, after which the student is prepared to draw directly from a living model.

The class in Architectural Drawing, which meets on Monday

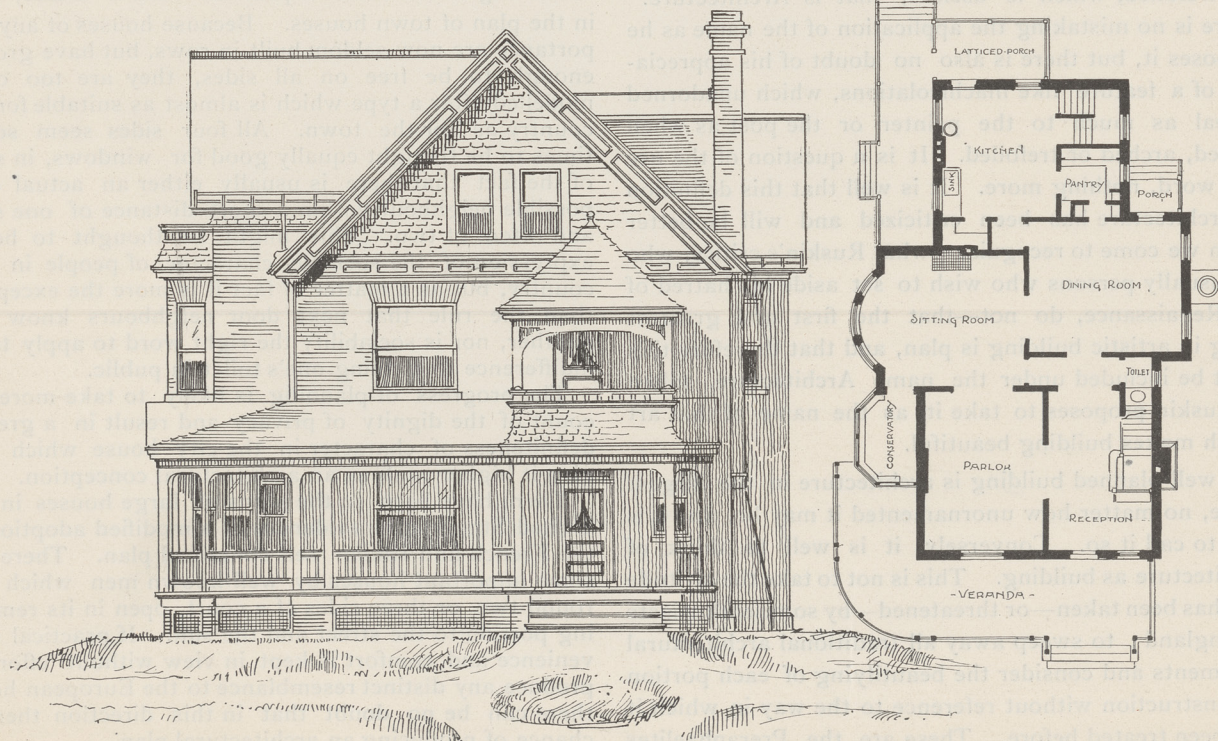
and Friday evenings, is under the direction of Messrs. Henry J. Peters and George a Monette. Exercises are given in geometry and projection, and instruction in the details of framing, plans and elevations of buildings and the preparation of working drawings.

The class in Stair Building and Building Construction is taught



COUNCIL OF ARTS AND MANUFACTURES, MONTREAL—SPECIMEN OF PUPILS' WORK IN STAIR BUILDING CLASS.

by Mr. L. H. Blouin. It meets every Wednesday and Friday evening. Instruction is given in making drawings and tracings of building details, and in methods of construction. Special attention is paid to the important subject of stair building, and explanations in relation to the construction of buildings. The



COUNCIL OF ARTS AND MANUFACTURES, MONTREAL—SPECIMEN OF PUPILS' WORK IN ARCHITECTURAL DRAWING CLASS.

tools and materials required are provided without cost to the students.

The Plumbing class, which, as has been stated, meets in a separate building, has as its instructor Mr. J. A. Peard, and is under the immediate direction of a committee of the Master Plumbers' Association of Montreal. The class has been arranged for apprentices and journeymen engaged in any of the branches of plumbing. The class room is equipped for about 75 pupils, each pupil having a gas furnace for melting solder and a drawer for holding tools. Instruction is given on such subjects as lead bossing, pipe bending, water closets and their fittings, water waste preventors, baths, lavatories and sinks, traps, soil pipes, connection of drains to sewers, ventilation of soil pipes and drains, sizes of pipes, water supply, house cisterns, the use of tools, etc., etc. Questions are placed on the blackboard by the teacher, which the pupils are required to answer in writing. The answers are returned to the pupils after being examined and corrected by the teacher. The pupils are supplied with material free of charge.

The Modelling class meets on Wednesday and Friday evening, and is under the instruction of Mr. J. O. Gratton. Pupils are expected to be experienced in freehand drawing, although this requirement is not rigidly ad-

hered to in the case of stone cutters and other pupils connected with the building trades.

Instruction in all the classes is given in both English and French, and is open to male pupils above the age of fifteen.



COUNCIL OF ARTS AND MANUFACTURES, MONTREAL—INTERIOR VIEW FREEHAND DRAWING AND MODELLING CLASS ROOM.

The work of the classes for 1898-99 began on October 17th. The attendance at most of the classes has increased from year to year, which may be taken as evidence that an educational want of the artizan classes is being satisfactorily supplied.

NOTES.

Much sympathy is felt with Mr. Lacroix, the City Building Inspector, in consequence of the recent death of his wife.

The geological students of McGill University have recently visited a number of the stone quarries in the vicinity of Montreal and Ottawa under the direction of Professor Adams.

The Municipal Association of Montreal having had under consideration the proposed new city charter, recommend to the council that the by-laws regarding fire escapes should be brought into harmony with the provincial laws on the subject, and that there should be instituted a thorough system of inspection of electrical fittings, wiring, etc., and of gas and gas meters.

The Knights of Labor, at a meeting held in Montreal recently, formulated a petition to the Lieutenant-Governor of Quebec for certain improvements in the educational system of the province. A clause in the petition is as follows: "As the apprenticeship system is rapidly disappearing, to replace it by the only one possible, the better technical education of our youth by means of schools or colleges of applied science."

The Liberal Contractors' Club at a recent meeting elected the following officers: President, Felix Sauvageau, re-elected; First Vice-President, Jos. Brunet, Mayor of Cote des Neiges; Second Vice-President, Godfrol Chapleau; Secretary, G. I. Leveille; Assistant Secretary, N. T. Gagnon; Treasurer, G. W. Crevier, re-elected; Committee—O. Cauchon, H. A. Brosseau, F. Fournier, A. C. St. Amour, L. Z. Lebeuf, O. Lemay, F. Lemoine and Onez Martineau.

The removal of the old Victoria bridge at Montreal is proving to be a very slow and difficult undertaking for the contractors, the Detroit Bridge & Iron Works. The company are employing compressed air for the purpose of cutting the rivets in the old structure. The weight of iron work in the old tubular bridge is upwards of 9,000 tons, and a very large sum will be spent in its removal. An immense shear is now under construction at the Bertram & Sons Iron Works at Dundas, Ont., for the purpose of cutting up the iron work of this old bridge into scrap.



COUNCIL OF ARTS AND MANUFACTURES, MONTREAL—SPECIMENS OF PUPILS' WORK IN FREEHAND DRAWING CLASS.

INTERIOR DECORATION.

By W. H. ELLIOTT.

It is difficult for a decorator, as indeed it is for one in any calling, to divest himself of the interest he has in his work sufficiently to stand aside and judge of its importance and place in relation to other things. And yet I am convinced that in many minds there exists such an erroneous conception of the functions of decoration as to justify a more emphatic assertion of its importance than is usually made. I imagine that few even among architects would consent to the proposition that a certain room or hall should be designed mainly for the display of decorative treatment, and yet many of the best known buildings and apartments in the world are of little use except for the display of their decorations and were primarily designed for that purpose. The Sistine Chapel, Loggia of the Vatican, portions of the Louvre and Versailles, the palace at Augsburg and many others suggest themselves. This at once gives dignity to the art. One hears continually of the necessity for making decoration a background for something else, such as pictures, furniture, dresses, people, and in many cases it is desirable, but by no means in all. It would manifestly be impossible to apply a purely decorative treatment to even a moderate proportion of the work undertaken, yet in a modified degree it should be applied to every work of any importance. The ceiling of the room may always be treated purely for decorative effect. Consequently in standard work we find the most elaborate decoration applied there. Nothing

planning of each scheme that presents itself for arrangement. So that in most cases a general rule must apply. I have found this to be safest. Allow one color to strongly predominate in the room. The other and smaller mass should be an analogous color. Any other color should be contrasting and small in quantity. Simplicity in color is obtained by this means. Then ornament should not be weakly scattered over the surfaces but massed in parts. Large plain surfaces are always grateful to the eye. Such decoration as the Moorish or Japanese diaper is no exception to this, for their repeated patterns become really plain surfaces. The decorator's task is made much more difficult by the variety of lines he sometimes meets. Among the most trying rooms to treat are those in which the architect, without apparent reason, has made several heights for doors and windows and has placed these openings without regard to the spaces on the walls. This indifference to spacing of the walls and lining of doors and windows gives no end of trouble in the after decoration and destroys the repose of the room. In fact, the only safe road when such conditions exist in a marked degree is to cover the whole wall with one treatment and thus dodge the difficulty. It is well also to avoid inharmonious color schemes in the fixed materials, such as woodwork, tiles, &c., not only with each other, but with the probable after treatment of the room in harmony with its character.

Rich coloring is almost indispensable to successful decoration. Even where light tints are used, plentiful use of gold should take



COUNCIL OF ARTS AND MANUFACTURES, MONTREAL—SPECIMENS OF PUPILS' WORK IN MODELLING CLASS.

interrupts the view, nor is the ceiling so much within the ordinary range of vision as to weary one. But there are rooms in which the walls may be treated almost as elaborately as the ceiling and with satisfactory results. The plea for the pictures in most houses such a hollow one as not to be worth serious consideration. I have seen the greatest care taken in the selection of a wallpaper for a room both as to pattern and color with reference to the pictures, and afterwards have seen the walls hung with the most inartistic pictures imaginable. One of Morris', or Crane's or Shand Kydd's bold designs would have been infinitely preferable.

I speak of wall papers because they are of necessity the almost universal covering material for walls. Of comparatively modern invention (no trace of them existing previous to the 16th century), no other material has offered itself nearly so satisfactory for transferring design and color to wall surfaces. And the material itself must be completely ignored, the most successful paper being that in which behind the design and color there is no thought of paper. To conceal the material in this case is perfectly legitimate, as it is only a means for transferring the design to the wall. On this account we are free to draw upon a great range of other materials, and while there need be no attempt at deception, the fine qualities of silk, tapestry, leather, &c., are obtained at a cost which makes decoration possible.

As in most other work, simplicity is the keynote of decoration. I do not mean by this weak color or the absence of design. Ordinarily there is neither time nor opportunity for a special

the place of color, for gold itself is very rich and satisfying. As to the use of various colors little can be said in a paper of this nature, but a few suggestions may be of use. Stronger colors may be used on the walls than might be thought possible with good results. The lighter blues are receding and the deeper blues are useful in an over-lighted room. Reds are nearly all assertive, but the strongest reds can be introduced into the color scheme with happy results. The same may be said of the yellows, some of which will bring positive sunshine into a northerly room. Combinations of blues and greens so often seen in the best designing give a very natural coloring to the wall and consequently freshness. The quieter tones of green alone are also very pleasant, but some of the stronger greens which nature uses are impossible in a room where the other outdoor conditions do not exist. As to balance of color, such combinations as we sometimes see of two-thirds of a wall red and the other third blue are always disturbing, and no room so treated can be restful. Greens with certain shades of brown are usually grateful to the eye. Yellow also forms a happy combination with green.

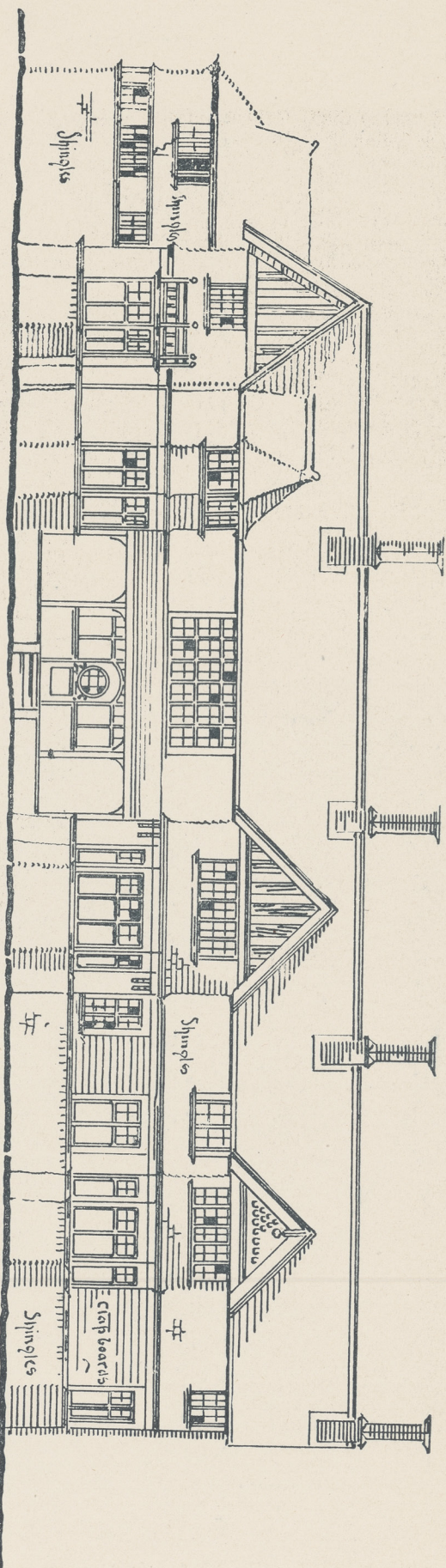
As to patterns it is an axiom with designers that large patterns are most suitable for very large and very small rooms. You can let the medium sized rooms take care of themselves. Of course the uses of the room govern the choice of pattern, and the eye naturally selects that most suitable. But it is a mistake to suppose that a large pattern necessarily reduces the apparent size of a room. When due attention is given to the coloring (avoiding contrasts) the reverse is the case. But in a large room

* Paper read before the Toronto Chapter of Architects.

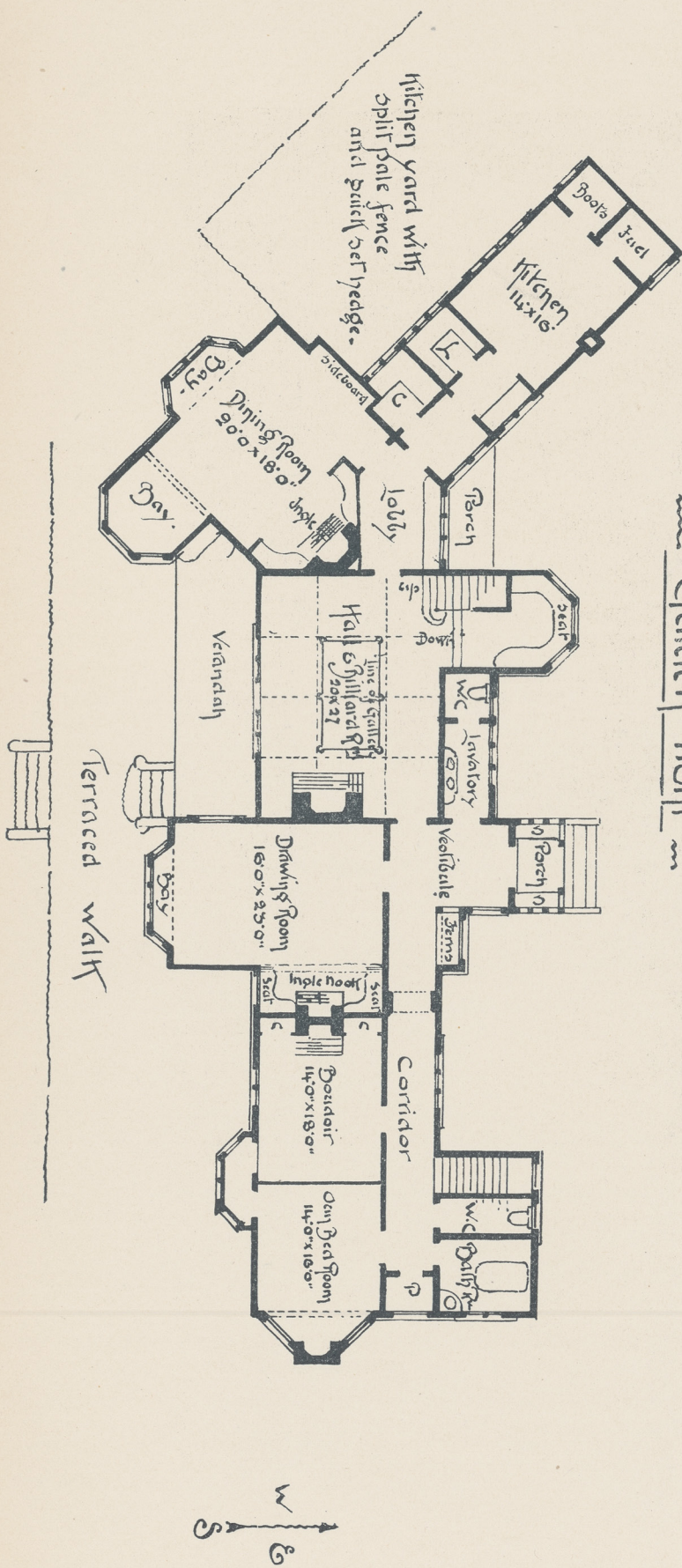


RESIDENCE OF MR. D. LENNON, WINNIPEG, MAN.
C. H. WHEELER, ARCHITECT.





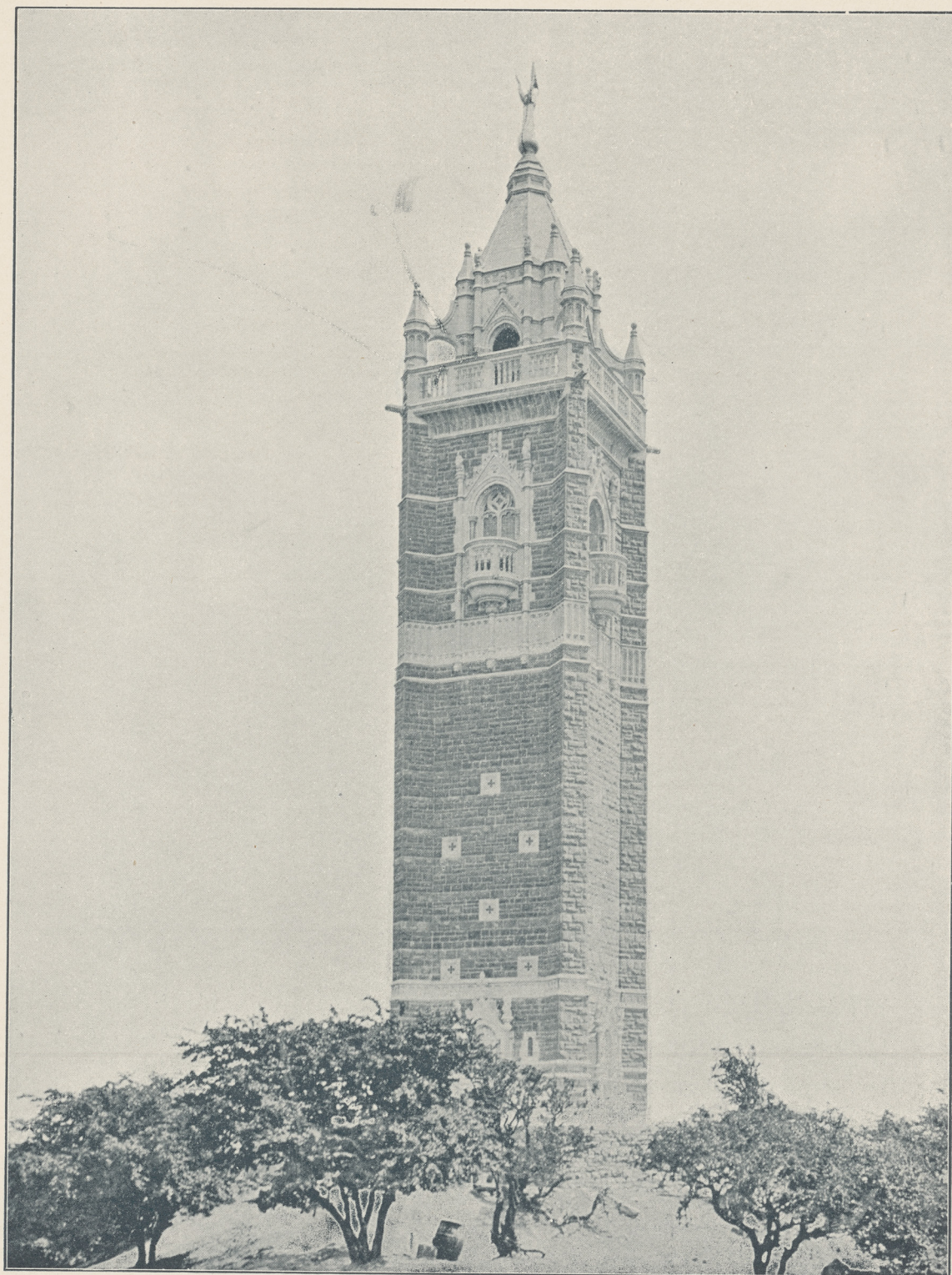
Garden front





CHAMPLAIN MONUMENT, QUEBEC.

PAUL CHEVRE, SCULPTOR; M. CHARDONNELL, ARCHITECT.



CABOT MEMORIAL TOWER, BRISTOL, ENGLAND.

W. V. GOUGH, ARCHITECT.



small patterns should never be used except as practically plain surfaces, forming a background for something more important. A great deal might be said about adapting the decoration to the habits, tastes and more important still, the purses of clients. But this leads into other topics not within the scope of this paper.

ILLUSTRATIONS.

CHAMPLAIN MONUMENT AT QUEBEC.—PAUL CHEVRE,
SCULPTOR ; MR. CHARDONNELL, ARCHITECT.

ALTERNATIVE DESIGNS FOR A HILLSIDE BUNGALOW TO BE
BUILT NEAR VICTORIA, B.C.—R. M. FRIPP,

F. R. I. B. A., ARCHITECT.

RESIDENCE OF MR. D. LENNON, WINNIPEG, MAN.—C. H.
WHEELER, ARCHITECT.

THE building is situated on Vennely street, and is a cosy, substantial residence built of local straw-colored brick, with Iron river sandstone dressings. The whole of the ground floor, staircase, halls, etc., are fitted up in quartered oak, ceiling of dining room and entrance hall pannelled in the same wood. The remaining woodwork is formed in British Columbia cedar. The plumbing is very elaborate, and of the best kind, including enamelled baths, sinks, tiled floor and walls to lavatory,

that of the time of Henry VII., which was considered to be appropriate, as representing the period when the voyages of the Cabots were undertaken.

The tower is built of red Mansfield sandstone from Nottinghamshire, with dressings of Bath freestone. Two stages are provided, each having balconies reached by circular staircases. On each face of the upper stage the balconies have affixed brass engraved plates indicating by arrows the surrounding objects of interest, the situations of the principal British towns and capitals of Europe, and by a prominent arrow giving the approximate direction of the point where Cabot is supposed to have landed on the American continent. The plateau on which the tower stands was artificially formed some time after the Crimean war for the purpose of placing thereon two of the Russian cannon captured in the war, and presented by the government to the city, by whom the site was granted for its present purpose conditionally on the cannon not being disturbed.

On the summit of the spire is a gilded figure representing Commerce. On the four faces of the base are elaborately carved panels containing the arms of the city



COUNCIL OF ARTS AND MANUFACTURES, MONTREAL.—SPECIMENS OF PUPILS' WORK IN LITHOGRAPHING CLASS.

etc. Hot water heating and electric fittings. Cost about \$6,500.

CABOT MEMORIAL TOWER, BRISTOL, ENGLAND.—W. V.
GOUGH, ARCHITECT.

The tower, of which an illustration is now given, has been erected to commemorate the sailing of the Cabots from the port of Bristol in the year 1497, resulting in the discovery of America.

It is built on the summit of Brandon Hill, a grass covered eminence rising almost in the middle of the city of Bristol, and in full view of that part of the river Avon from which the Cabots are supposed to have sailed. A beautiful and comprehensive prospect of the city and surrounding country is obtained from the hill and the balconies of the tower. The funds for its erection have been raised by a committee of Bristol citizens, prominent among whom is Mr. W. H. Davies, ex-Mayor of Bristol, chairman, and Messrs. J. W. Arrowsmith and E. G. Clarke, hon. secretaries. The former was one of those deputed by the city of Bristol to visit Canada last year to join in the celebration then held in commemoration of the same event.

The style in which the building has been designed is

of Bristol ; those of the Society of Merchant Venturers, an ancient and wealthy local corporation ; the arms of Venice, the domicile of John Cabot for a considerable part of his life ; and those of Henry VII. contemporary with Cabot. On three sides of the base are panels containing bronze tablets, two of which give the dates and descriptions of the laying of the foundation stone and opening respectively, and the other the gift of the Bristol branch of the Peace Society, on which is engraved an inscription setting forth the Society's desire for universal peace, and more especially for lasting friendly relations with the United States of America.

The foundation stone was laid on June 24th, 1897, the 400th anniversary of Cabot's sailing from Bristol, by the Marquis of Dufferin and Ava, who was asked, as a former Governor-General of Canada, to perform the ceremony. It was opened by him, and handed over to the city of Bristol on Sept. 6th, 1898, when were present Lord Strathcona and other eminent Canadians, who attended the meeting of the British Association held at the same time in Bristol.

The architect is Mr. W. V. Gough, of 24 Bridge street, Bristol, whose design was selected in a limited competition between local architects.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

THE eighth annual convention of the Province of Quebec Association of Architects was opened, pursuant to announcement, in the rooms of the Association, New York Life Building, Montreal, at 10 o'clock, a.m., on Thursday, the 3rd inst. The President, Mr. J. F. Peachy, of Quebec, presided.

Amongst those present were Messrs. J. S. Archibald, H. L. Auclair, C. Baillarge, A. Blouin, D. R. Brown, C. Brodeur, J. P. Barner, S. H. Capper, J. A. Chausse, A. J. Cooke, W. E. Doran, J. E. Duquette, J. A. Deschamp, H. R. Falbord, S. A. Finley, C. E. Fournier, P. A. Gamelin, J. A. Godin, A. C. Hutchison, M. Hebbbronner, J. E. Huot, J. C. A. Heriot, J. A. Karch, A. H. Lapierre, S. Lesage, P. A. Lefort, J. E. Larochelle, J. L. Lafrenier, J. H. Lamoureux, L. Lemieux, Ed. Maxwell, C. Lafond, G. A. Monette, W. S. Maxwell, J. H. McDuff, J. A. Morin, J. Nelson, D. Ouellet, J. Perrault, M. Perrault, J. F. Peachy, A. Raza, H. Stavely, A. M. Sigouin, C. J. Saxe, J. S. Smith, A. Sincennes, A. T. Taylor, J. E. Tanguay, J. O. Turgeon, J. Venne, A. Venne, G. W. Woods, R. Findlay.

After the reading of the names of the qualified members, the Secretary proceeded to read the minutes of the last annual meeting.

Proposed by Mr. J. A. Chausse, seconded by Prof. S. H. Capper, that the minutes be approved. Carried.

The Treasurer then gave in his report, approved by the Auditors, Messrs. W. E. Doran and M. Perrault, as follows :

TREASURER'S REPORT.

Receipts from October 5th, 1897, to October 5th, 1898.

Balance from 1897.....	\$ 110.95
Subscriptions (annual) and examination fees ...	1270.00
Registration fees.....	2050.00
Rents.....	212.50

Total.....\$3643.45

We, the undersigned Auditors, have examined the books and vouchers, and find the above statement correct.

W. E. DORAN.
M. PERRAULT.

October 19th, 1898.

Disbursements from October 5th, 1897, to October 5th, 1898 :

Salary account.....	\$356.50
Rent paid New York Life Association Co.....	200.00
Printing, typewriting, stationery and advertising.	129.09
Architectural Journals.....	16.00
Telephone (2 years).....	30.00
Sundries.....	43.58
Civic taxes.....	13.58
Examination fees.....	45.00
Refund of subscriptions to Quebec members....	105.00
Expenses of amending charter.....	630.58

\$1,569.33

Receipts.....	\$3,643.45
Expenditure.....	1,569.33

Balance on hand.....\$2,074.12

The report of the Council was then presented :

REPORT OF COUNCIL FOR 1898.

Your Council beg to present the eighth annual report of the work of the Association.

In the last annual report reference was made to the depression in the building trades, and hopes were expressed that soon there would be a more satisfactory condition of things. This hope has only been partially realized. Although trade has improved it still leaves much to be desired, and we have still to echo the hope that the coming year may be a busy and profitable one for the profession.

In one respect, however, this has been the most eventful year since the incorporation of our Association. We have at last obtained what we desired as much for the welfare of the community as our own, but which we failed to obtain at the inception of

our Association, namely, the right to prohibit unauthorized and unqualified persons from calling themselves architects.

Your Council was authorized by you at the last annual meeting held in Quebec to take steps to secure this measure together with other amendments, the time being considered by many as opportune, and the result has justified this conclusion.

Your Council lost no time in taking this matter up and it absorbed most of the time devoted to the regular and many special meetings, as will be seen by the following resume :

September 30th, 1897.—Resolution of the general assembly authorizing the Council to study the amendments desired as expressed in the report from Quebec members and to report to a general meeting.

October 5th, 1897.—Regular meeting of Council where a special meeting of the committee for and at the general assembly and Council was called for October the 7th.

October 7th, 1897.—The special committee took legal advice as to the possibilities of success and considered ways and means.

October 27th, 1897.—The special committee reported favorably and presented a draft of the procedure to follow as prepared by the lawyer. A special guarantee fund was started to meet the necessary expenditures.

November 3rd, 1897.—General meeting was held conformably to the resolution passed at the annual meeting. A draft of the proposed amendments was approved by the meeting. Upon the advice of the lawyer the official notices were immediately issued in the Official Gazette of Quebec.

November 9th, December 7th, 1897.—Routine work pertaining to the amendments.

January 4th, 1898.—The Council was informed that our lawyer with the committee in Quebec were actively engaged with the representatives in connection with the bill, also that they had been compelled owing to some opposition to admit as architects students having regularly served in an architect's office during four years.

February 8th, 1898.—The bill as assented to by the Lieutenant-Governor was received from the legal adviser of the Association, Hon. Sen. R. Dandurand.

February 15th, 1898.—Our lawyer was consulted as to the best course to follow to carry these amendments contained in this bill into effect.

February 21st, 1898.—A general meeting of the Association was held in conformity with the advice of our lawyer, and elections of a secretary and a treasurer separately were carried out. The amendments to the charter were read and explained and received the approval of the meeting. The notice to be issued in the Official Gazette, as prepared by our lawyer, was also read to the meeting.

March 1st, 1898.—The Council drew up the formula of registration and ordered them to be printed.

April 19th, 1898.—The first applications were considered, and from this date the sittings of the Council have been largely occupied by their consideration.

As actually constituted, the Association numbers one hundred and thirty-eight old and new members included.

The profession is now closed to unqualified practitioners, and only three alternatives are left to outsiders who wish to qualify themselves to practice.

1st. Old members having allowed themselves to be disqualified may re-enter by paying their arrears, subject to the action of the council.

2nd. Members of a well-known sister society who come to settle and practice regularly in the province, by presenting their credentials.

3rd. Those who shall pass the examination prescribed by the charter and by-laws. The arduous task of the material organization is now nearly completed, and the Association can congratulate itself on having secured an authority much coveted by many similar and more influential associations than ours. Not only the interests of the profession, but more especially those of the public, are now protected against incompetent and doubtful practice. The time has now come to put into practice the ideal formulated in the constitution, and aiming to foster the dignity and integrity of the profession, to encourage a better companionship and mutual respect between architects, and last, but not least, to promote the progress of the art, without which all the rest will be useless.

In view of the above mentioned action, the scheme for a Dominion Institute of Architects has for the present been abandoned.

The Council has with great regret to chronicle the decease of our confrere, Mr. Ovide Mailloux, who was one of the original

charter members and a late member of Council. A resolution of condolence was passed at a special general meeting, which was ordered to be put in the minutes and a copy of same to be sent to the widow and bereaved family.

In accordance with the powers of the Council, Mr. L. A. Montbriand was elected to the vacant position.

The lectures and dinners organized during the winter were followed with the usual success. The lectures were given in the Art Gallery by the kind permission of the Art Association, as in previous years. The lecturers were Prof. F. D. Adams, M.A. Ph. D., who delivered an able lecture on "Pompeii"; Prof. C. H. Calby, M.A. Ph. D., on "Brunelleschi," and Prof. S. H. Capper, on "Ancient Rome." To these gentlemen the hearty thanks of the Association were tendered.

Your Council did not lose sight of the important duty imposed of endeavoring to obtain the sanction of the Lieutenant-Governor to our schedule of charges as provided for in our original charter. It was thought desirable to obtain legal co-operation, and this has been secured. Your Council trusts that this matter also may soon be brought to a satisfactory issue.

The examinations of this year have not been fruitful of success; only one candidate presented himself at the winter examination, but retired on account of ill-health.

Three candidates were examined at the summer session, but all failed to matriculate. It is proposed to make some small changes in the examination curriculum. Your Council and the examiner have considered the matter, and the result will be seen in the proposed amendments to the by-laws, of which notice has been given.

Through the good offices of one of our members, the Council were enabled to exhibit in the rooms of the Association all the valuable documents concerning the Phoebe Hearst competition for the proposed new University of California, and members were all notified of the competition.

Your Council have followed as keenly as possible the vicissitudes of the draft of the new building by-laws for the city of Montreal, which were prepared by the Association and delivered to the City Council a considerable time ago. Steps have been taken from time to time to endeavor to expedite matters. The necessity for a new and vastly improved building by-law for the city of Montreal cannot be doubted, and delay can only be fruitful of harm to the city and citizens. It will be the important and pressing work of the new Council to endeavor to forward the passing of these by-laws in the interest of the public.

Several applications have been received for copies of the Constitution and By-laws, but it was thought better to wait until the new amendments that have been prepared by a special committee, who have devoted much time to their consideration, were sanctioned by the Association, before they were printed and distributed. Moreover, the translation of so important a document requires very special care, and it is suggested that it be put in the hands of a select committee, who shall have power to thoroughly revise the text and render the same consistent and clear.

There have been three special general meetings of the Association during this year, twelve regular meetings of Council and eleven special meetings.

The attendance has been as follows: J. F. Peachy, president, Quebec, 0; A. Raza, 1st vice-president, 25; A. F. Dunlop, 2nd vice-president, 0; Joseph Venne, secretary, 29; E. Maxwell, treasurer, 25; A. T. Taylor, 22; C. Baillarge, Quebec, 0; A. C. Hutchison, 21; James Nelson, 25; O. Mailloux (deceased during the year), 8; Prof. S. H. Capper, 13; L. R. Montbriand (elected to take the seat of O. Mailloux), 6.

J. F. PEACHY, President.
JOS. VENNE, Secretary.

The report of the Quebec Section was then presented:

REPORT OF QUEBEC SECTION.

The undersigned officers for Quebec section, P.Q.A.A., hereby have the honor to submit the annual report of said section for the year 1897-98.

On the 19th of October, 1897, Mr. D. Ouellet was elected President and Mr. Jos. P. Ouellet Secretary of said Quebec section, vice Messrs. Baillarge and Bussieres, whose term of office had expired.

At the same meeting was discussed the question of amendments to be made to the charter of our Association, and the amendments agreed upon were forwarded to the General Council at Montreal.

It having been decided at said general meeting, held at Montreal on the 27th of October, ultimo, to start a list of voluntary subscriptions to cover the necessary expenses required for

the passing of said amendments by the Provincial Legislature, the Quebec members of the P.Q.A.A. enlisted, and at the first call of the treasurer of the Association, paid fifty per cent. of their subscriptions.

When the measure was brought before Parliament, the Quebec members joined with their Montreal fellow-architects, and worked hand in hand with them for the common welfare of the Association; and thanks to the well combined efforts of all, and to the justice of our request, the then proposed amendments are now law.

His Worship the Mayor of Quebec having kindly placed at our disposal a room in the city hall, said room has been furnished at our own expense as the place of our future meetings. The photos of the presidents of our Association have been placed in this room, and Mr. Baillarge has collected there quite a number of samples of building materials.

At an assembly held on the 6th of April ultimo, the members of our section, through courtesy, decided to notify all persons who were practising architecture in Quebec (in public offices or elsewhere), without being members of the P.Q.A.A., that they had, consistent with the law, to enlist as members of said Association before the fifth of September now passed, and they have been referred to the secretary of the Association in Montreal for further information on the matter. The above respectfully submitted.

(Signed) D. OUELLET, President Quebec Section.
JOS. P. OUELLET, Secretary.

QUEBEC, 6/10/98.

The election of officers was then proceeded with, the following being the result:—President, A. Raza; 1st Vice-President, Prof. S. H. Capper; 2nd Vice-President, G. E. Tanguay; Secretary, Jos. Venne; Treasurer, W. E. Doran; Councillors—J. F. Peachy, M. Perrault, E. Maxwell, J. S. Archbald, G. A. Monette, A. T. Taylor; Auditors—J. C. A. Heriot and J. A. Chausse.

The retiring President then delivered the following address:

RETIRING PRESIDENT'S ADDRESS.

GENTLEMEN,—As President of this Association I must say that I had very little to do during my term of office, as this is only the third and last meeting at which I have had to preside. However vital questions have been decided in the interests of the Association during this term.

First, this interesting motion of Mr. M. Perrault, seconded by Mr. G. E. Tanguay, aiming at amendments to our charter, so as to strengthen our association and to give it definite powers.

On the recommendation of the Council the proposed amendments to the charter were put in charge of Hon. Senator R. Dandurand, and this friend of our Association willingly gave his best efforts as barrister, and fulfilled his duties of legal adviser with an ability above praise.

Mr. Dandurand ably directed the proceedings of the Council and helped its members in their relation with the provincial legislature, and the result obtained was very important and satisfactory as the greatly increased membership of our Association testifies.

We may now feel that the Province of Quebec Association of Architects is firmly established. It will become the duty of future officers to effectively direct the Association and to act firmly in all questions that shall be referred to its care for the welfare of the Association.

Our Association now has an assured standing, and it is my desire to always continue my connection with it, being proud to be one of the charter members.

The good will which has ever existed between the members of Montreal and Quebec since the formation of the Association is a guarantee for the future. I have no doubt that the Association will maintain its position, if not for ever, at least for a great number of years. Let us remember that our union shall be our strength and our staying power.

Our Association, founded eight years ago, has made yearly progress and gained public consideration. Many young students have passed with distinction the examinations, and are now successful competitors in the field of the profession.

I must acknowledge the splendid reception in the way of interest-meetings and visits, banquets, etc., which we from Quebec have always received in Montreal.

I shall close by thanking the members for the courtesy shown me during my term of office as President. I must specially thank

our worthy Secretary, Mr. Venne; our relations during my term of office have been of the most cordial character. I must also thank our Treasurer, Mr. Maxwell, for the friendship which he has exhibited towards the Quebec members. Lastly, I thank all members with whom I have had intercourse during my term of office.

I now leave the Presidency to my confrere, Mr. A. Raza, who, being a resident of this city, will be better able to promote the interests of our Association.

The meeting then adjourned for luncheon.

AFTERNOON SESSION.

The meeting resumed with Mr. A. Raza, the newly-elected President, in the chair.

Several members who were absent in the forenoon presented themselves at the afternoon session, amongst whom were Messrs. J. B. Resther, R. C. Decary and Theo. Daoust.

The President thanked the members for the honor conferred upon him, and further said:

PRESIDENT'S ADDRESS.

GENTLEMEN OF THE ASSOCIATION,—I must thank you for the honor you have conferred upon me by electing me to the presidency of the Province of Quebec Association of Architects, and I beg you to believe that I shall leave nothing undone to foster the purposes of our Association, to increase its beneficent influence in raising the standard of study and assisting in our immediate surroundings the growth of good taste and classical art which we are called upon to cultivate and induce others to appreciate.

Perhaps our profession has not received its due share of appreciation in Canada, as in other countries. France possesses the greatest art institutions in the world, and no artistic reputation is considered achieved unless it has been recognized and sanctioned by the French critics of the Salons, Conservatories, or in the well conducted competitions in sculpture and architecture. But France has always held art in great esteem and honor; it lavished its most generous encouragement upon its own artists, and especially in particular, our art. The Society Centrale des Architectes de France commands the greatest influence and respect. It has been granted the most precious and extraordinary privileges, as every enlightened citizen feels that the honor of the country is centred in its schools of painting, sculpture and architecture.

The aims of our Association—still in its infancy, having only eight years of legal existence—cannot be so ambitious as to pretend to equal those of the most celebrated institutes, as its field of action is necessarily restricted. We cannot hope to revolutionize the art feeling of our clients, who generally have no very adequate ideas of style. The knowledge of architecture is rather restricted, and better ideas may be expected to take root, but gradually. Traditions are lacking in our new community, which is still imbued with ideas rather more utilitarian than artistic.

However, the dawn of greater refinement is coming; there are unmistakable signs of decided progress, and buildings which were considered masterpieces twenty years ago are altogether depreciated, when judged by better standards of good taste.

I shall willingly admit that there is a tremendous task still left for us, but as a French saying goes, "Paris was not built in one day," and we cannot expect that in a young country like ours, where the fine arts only play second fiddle, that the architect, ill-directed and encouraged by the modest and crude expectations of the public, could have imprinted that good taste, that desire, that enthusiasm of a more ancient civilization.

In America one must build quickly and give large and prompt returns to the client for his investment. The client insists on the greatest amount of rentable space being crowded into his building; in having ladders, instead of reasonable and commodious staircases.

It too often happens that the greedy speculator shrinks from the idea of consulting an architect, and will call on any stone cutter or wood butcher to draw the rudiments of a plan, venturing on this to build those ugly and ill-proportioned, ill-matured structures, spoiling whole streets—nay, even whole suburbs.

Most certainly the architect cannot bear the whole responsibility of such a state of affairs, but we may inquire where is the remedy for this evil? It is in the intelligent, up-to-date and effective ruling by the civic powers. Good, intelligent, well-directed "city by-laws" will go a long way to improve matters, and we have been persistently memorializing the City Council for that purpose.

Such improved by-laws are of immediate necessity, not only from an artistic point of view, but for the security and comfort of the community, as it often happens that through eccentricities and exaggerations one endangers neighboring properties.

I said that Paris was not built in one day, but we must acknowledge that its citizens did not hesitate to tear down all the older city to rebuild it in less than half a century on more approved and improved notions.

The Paris municipal by-laws are most stringent and absolutely unyielding as to the alignment, height of buildings, and nature of materials.

Our municipal corporations throughout the province have much to be blamed for in this particular, and it is time that persons experienced in building construction, and more especially the architects, shall agitate to obtain improvement.

No building operation should be commenced before a plan shall have been submitted to and approved of by a competent board, where the architect should be represented.

I could lay much stress on this single matter. I could also entertain you on numberless kindred subjects, but I would fear to trespass on your good will. I must conclude by a wish—that is, that the Association be true to its motto: "Magna est veritas et prevalebit." We have striven for the victory of truth and sincerity in our art, and so we shall continue until our efforts shall have been rightly appreciated and approved by our community.

The consideration of amendments to the By-Laws occupied the attention of the meeting for the remainder of the day.

THE ANNUAL DINNER.

The annual association banquet was held in the handsome dining hall of the Hotel Viger, the tables being beautifully decorated for the occasion. The chair was occupied by the newly elected president, Mr. Raza, and the vice-chair by the 1st vice-president, Prof. S. H. Capper. Mayor Prefontaine, Senator Dandaurand, Dean Bovey and Prof. Adams, of McGill University, were among the invited guests. Letters of regret were read by the secretary, Mr. Joseph Venne, from His Honor, Lieutenant-Governor Jette, Premier Marchand, Senator Drummond, C. W. Colby, Professor of History McGill University, R. B. Angus and W. C. McDonald.

After loyalty had been pledged to the Queen and Governor-general, the Mayor proposed in French a toast to "The Honorary Members," which was responded to in English by Senator Dandaurand, Dean Bovey and Prof. Adams. Prof. Capper speaking in French and English proposed a toast to "The Sister Associations." In the absence of any member of the Ontario Association of Architects, Mr. C. H. Mortimer, of the CANADIAN ARCHITECT AND BUILDER, responded on behalf of that society.

The proceedings were enlivened by a humorous speech by Mr. W. E. Doran, in which he described the origin and evolution of certain characteristic forms of architecture in Montreal.

Mr. Chas. Baillarge, in reply to some remarks by the mayor, pleaded from a humanitarian standpoint for the retention of exterior fire escapes.

The efforts of an excellent orchestra were supplemented by songs from Messrs. Baillarge and Monette.

SECOND DAY.

The closing day of the convention was profitably spent in sight-seeing. In the forenoon the members were shown through the new Chemistry and Mining Building of McGill University, by the architect, Mr. A. T. Taylor, F.R.I.B.A., the equipment being explained to them by Prof. Harrington. They were also privileged to witness experiments in crushing, by Mr. Bell, assistant to Dr. Porter.

At 2 p.m. they viewed the valuable collection of

paintings in the residence of the Hon. Geo. A. Drummond. The collection includes examples of the work of Millet, Diaz, Troyon and Corot, also notable examples of the work of classical English painters.

Finally a visit was made to the Architectural Department of McGill University. Prof. S. H. Capper was present to extend a hearty welcome, to act as conductor, and explain the facilities at his disposal for the instruction of those who desire to enter the profession of architecture. The entire top flat of the engineering building is devoted to the use of this department, for which purpose it is excellently adapted, both as regards space and light. There are also lecture rooms on the floor below. The upper flat, devoted to instruction in drawing is divided into two compartments, one for first and second year students, the other for third and fourth year students. The walls are hung with a valuable collection of plaster casts, which exemplify the orders of architecture, and the distinguishing characteristics of each of the styles. There are also a number of cases containing casts of statuary, etc. The architectural casts have as far as possible been classified according to the style and period to which they belong. The lecture room below is equipped with a collection of 2,000 photographs and lantern slides of celebrated buildings, and a powerful lantern by means of which these views can be projected on a screen and their features explained. The pictures thrown on the screen by this lantern are but slightly dimmed by natural light, so that enough daylight can be admitted to the lecture room to allow of the students making notes as the lectures proceed. The lantern slides have been carefully classified and indexed, so as to be immediately available. The photographs are also being catalogued, and when this is done they will be available to the students at all times. A considerable number of valuable reference books are also at the disposal of the students, a room having been specially set apart in the Redpath Library for this purpose. In their first and second year students in this department are given practical instruction in wood turning, bench work and foundry practice. The third and fourth year pupils are given problems in design, being left free to choose the style in which they will work.

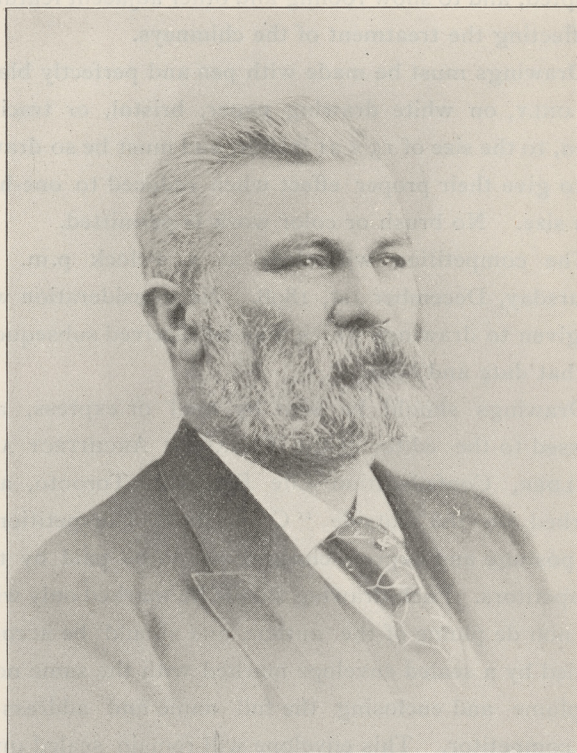
Near Boise City, Idaho, 400 feet below the earth's surface, there is a subterranean lake of hot water of 170 degrees temperature. It has pressure enough to ascend to the top floor of most of the houses, and will be piped to them for heating purposes.

The high oak wainscot of a recently decorated hall has been divided into small square flat panels that have been left without mouldings, and finished to imitate black Flemish oak, without paste filler, so that the grain of the wood is very evident. Above this wainscoting the wall has been hung with an imported paper that gives the effect of Gobelins tapestry, with its subdued though rich coloring. The ceiling has been finished with a beam effect, between which the spaces have been hung with dull red tapestry canvas. The oak floor, which has been filled with a black paste filler and then has been waxed, is kept constantly polished with weighted brushes. The chimney piece of oak, with a carved hood, carries out the Flemish effect, and the fireplace itself is built and faced with very dark bricks, burned until they are almost black, and having a kiln glaze on their surface.

MR. ALPH. RAZA.

THE new President of the Province of Quebec Association of Architects, Mr. Alph. Raza, was born in Montreal on October 7th, 1846. He is a son of the late Mr. H. P. Raza, who was a building contractor. He made complete studies at the Commercial Academy, then under the management of Professor E. W. Archambault; and began the study of architecture in 1861 under the firm of architects, Messrs. Fowler & Roy, with whom he remained some years, and afterwards with the late Mr. W. T. Thomas. He opened an office in Montreal in 1872. Many public and private buildings were put up under his direction in Montreal and in the province of Quebec.

Mr. Raza has occupied the position of local architect for the Ottawa government for over eighteen years, and also five years for the Quebec government. He is a



MR. ALPH. RAZA,
President Province of Quebec Association of Architects.

member of the French Board of Trade and a Justice of the Peace, and is also one of the original promoters of the Association over which he has now been chosen to preside.

Above the low open book-shelves, finished in forest green oak, the walls in the library of a suburban house have been hung with a dark green burlap, on which an intricate Persian pattern, some two feet deep, has been stenciled as a frieze. The picture moulding has been set in the angle of the ceiling, so that the wires supporting the pictures cross the frieze. The ceiling is covered with a canvas relief material in a small diaper pattern, harmonizing with the frieze design, the colors being dull red for the background and gold for the figures. Green curtains, embroidered in gold, slide on brass rods before the book-shelves, and heavier curtains in the same combination of colors hang at the windows and the door. In the broad bay window is a box seat, heaped with bright colored cushions, that is as attractive looking as it is comfortable. An Oriental rug on the floor gives a touch of warm color to the room, which is heightened by a few choice paintings of Eastern scenes in broad flat frames of gold.

STUDENTS' DEPARTMENT.

C. A. & B. STUDENTS' COMPETITION.

THE publishers of the CANADIAN ARCHITECT AND BUILDER invite architectural students to submit drawings in competition for designs for four ornamental chimneys, for which first, second and third prizes of \$15, \$5 and one year's subscription to the ARCHITECT AND BUILDER, respectively, are offered.

The chimneys may be of brick, stone or terra cotta, or any or all of these combined.

Competitors are required to show by plans, perspective sketches and details, with or without elevations, the chimneys and sufficient of the plan and arrangement of building to explain the reason for form and position adopted, and to show roofing and other adjacent features if affecting the treatment of the chimneys.

Drawings must be made with pen and perfectly black ink ONLY, on white drawing paper, bristol, or tracing linen, to the size of 15 x 21 inches, and must be so drawn as to give their proper effect when reduced to one-half this size. No brush or color work is permitted.

The competition will close at 5 o'clock p.m. on Thursday, December 1st, 1898. No consideration will be given to drawings which may be received subsequent to that date and hour.

Drawings should be sent by mail or express, addressed to the editor of the CANADIAN ARCHITECT AND BUILDER, Confederation Life Building, Toronto, and marked on the outside "C. A. & B. Competition." All postage and express charges are to be paid by the competitors. Each drawing should be marked only with the non de plume of the author, and should be accompanied by a sealed envelope marked with the same non de plume and enclosing the full name and address of the competitor. This envelope will remain sealed until the competition is decided.

The merits of the designs which may be submitted in this competition will be decided by a joint committee, composed of officers of the Ontario Association of Architects and the Province of Quebec Association of Architects, whose decision will be final.

The right is reserved to withhold one or all of the prizes if, in the opinion of the judges, the designs submitted should be so inferior as to warrant such a proceeding.

Students are requested to read carefully the above conditions, absolute compliance with which will be required of each competitor.

TESTS OF BUILDING STONES.

In the 17th Geological Report of the State of Indiana, the following directions are given for testing the quality of building stones:

The elasticity of stone may be tested by sawing it into long, slender strips, say two inches square and three feet long, when, if it be quite perceptibly flexible, its elasticity is good. If such a bar be suspended so as to hang free by a string and is struck a light blow with a

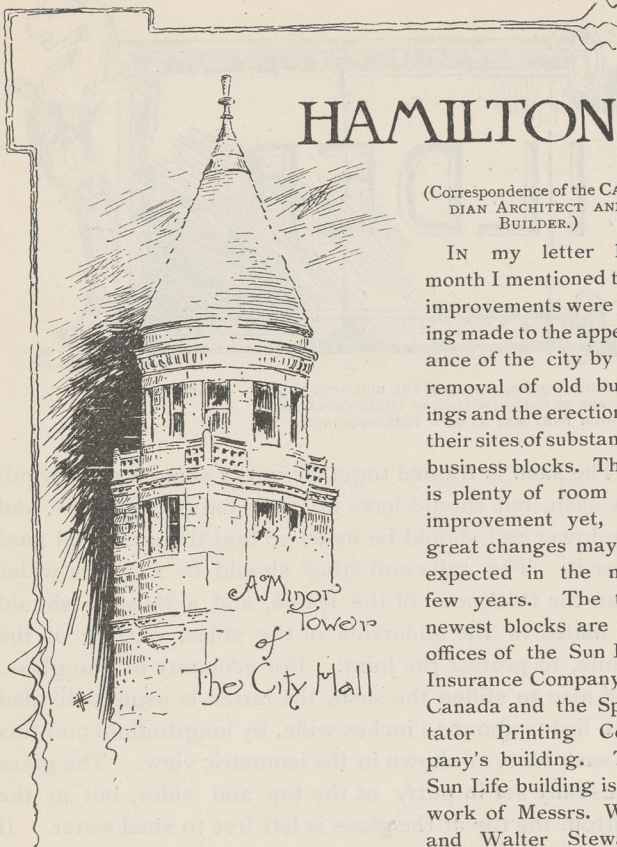
hammer, its evenness and solidity of fiber will be attested by a clear, sweet metallic note, not unlike that of a fine bell, or that of a well tempered steel bar. As a rule the best stone will break with a direct line of fracture; but it may be conchoidal or otherwise indirect and still be unobjectionable. Parallel lines of cleavage or of stratification are always favorable indications where other features are promising.

Resistance to crushing weight may be pretty safely inferred from solidity of texture and evenness of grain; but it is always necessary before a final acceptance to submit the material to the severest tests of an apparatus for that purpose. This will be described in the proper place.

In examining sandstone, with a view to building purposes, the outcropping, if there be any, should be carefully scanned with a view to discovering what effect long exposure to the atmosphere and the rigors of winter may have had upon it. If the stone has "weathered" badly this will be shown by one or another sign of disintegration or demolition and a talus of fragments and sand will be found formed at or near the base of the outcropping-cliff. Often the substance of the rock will show unmistakable evidence of inequalities of structural composition, such as horizontal cavities caused by the weathering out of seams or streaks that, on account of bearing too much iron, have oxidized and crumbled away. Such stone, if used in a building, would prove worthless and, therefore, dangerous. It is often the case, as I have observed during a long experience in civil engineering, that public bridges erected by counties are rendered unsafe by having their piers and abutments constructed of this kind of stone, and that, too, in places where most excellent material lay near at hand, and which a little knowledge of the nature of stone would have pointed out to the superintendent. Too frequently it happens that appearances of the most untrustworthy kind are relied upon where an ignorant person is set to do work which ought to be in charge of a skilled and well-informed engineer.

In judging of the probable durability of limestone, before subjecting it to any test of science, the same observations should be made as in the case of sandstone, with a view to ascertaining its weathering qualities. Any unequal discoloration of the face of the exposed ledge should be scrutinized carefully. Usually these are caused by the presence of iron in the composition of the rock. But limestones are much more injuriously affected by hidden faults of composition than any sandstones, and for this reason they demand a much more careful examination before any extensive quarries are opened. It is often the case that iron in limestone will do no more than discolor the outer surface on exposure to the action of air and rain-water; but even this is a serious defect when the stone is to be used in any structure wherein beauty is a chief object. For the rough masonry of ordinary bridges, and for the hidden foundations of buildings, a cheap and durable stone is what is most wanted, and in these discoloration is not a fatal fault.

An authority on the construction of green-houses says in a recent interesting paper that after the heating and watering, the ventilation of the green-house requires the most careful attention, and should be regarded as a part of the heating system. It should be so managed as to prevent overheating, which is commonly more detrimental than too little.



HAMILTON

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

IN my letter last month I mentioned that improvements were being made to the appearance of the city by the removal of old buildings and the erection on their sites of substantial business blocks. There is plenty of room for improvement yet, but great changes may be expected in the next few years. The two newest blocks are the offices of the Sun Life Insurance Company of Canada and the Spectator Printing Company's building. The Sun Life building is the work of Messrs. Wm. and Walter Stewart,

architects, and the Spectator, of Mr. W. G. Witton. The Sun Life is a handsome white stone structure in Italian Renaissance, and when finished bids fair to be one at any rate of the handsomest buildings in the city. Unfortunately, the site is not rectangular, and as the panelled ceilings follow the angles of the walls, everything is on the skew. A good deal of marble is introduced in dados and architraves of doors; there are panels of beautiful onyx in the dado, and when the decorators get at the plaster caps of the marble columns in the hall, and the moulded friezes and so on, the effect will be no doubt very rich. There is some very good carving in stone inside and out, executed by Mr. F. Turner. The principal contractors are George Webb and L. Medley for the brick and stone work; Dixon, the carpenter's work; Hoodless & Son, the finished hardwood; the marble work has been carried out by Forsythe, of Montreal; Ross Bros. are the painters and decorators, and R. Dow the plasterer, some of whose moulded work is very good indeed.

The Spectator building forms a contrast to the Sun Life, being dark in general color, Connecticut stone and brown bricks. Its internal finish is very plain and simple throughout, there being no attempt at decoration, except, perhaps, in the entrance hall, where a little marble is introduced. George Webb and Press & Sons were the principal contractors. Several other buildings of importance, as factories and warehouses, have been erected this year all about the place, and the opening of the new Waldorf Hotel and the extensive alterations being carried out to the Royal of long standing (under Mr. W. P. Witton) all show that Hamilton is a "live town" and will have an important future. It is probable that an officer will be appointed to look after the interests of the city, much in the way that Mr. Fleming does for Toronto, and it is well for the city that its merchants and other business men are waking up to the fact that their premises put up forty years ago are not suitable for extension of trade, nor do they give an idea of prosperity to the visitor. Insurance companies and banks have taken the lead in the work of improvement, and it is for others to follow suit. The next thing to do is to return to Council the proper kind of pushing business men. The days of sticking in the mud are passing away, and Hamilton may yet deserve its name of "The Ambitious."

I am pleased to learn that a movement is on foot for the organization of a Builders' Exchange for this city on similar lines to the present organizations in Montreal, Toronto and London. It is reported that conditions in Hamilton as regards prices, etc., are not satisfactory, and it is believed that the formation of a Builders' Exchange would be the means of bringing about an improved state of things in the building trade. The success which has attended the formation of exchanges in the Canadian cities above referred to should be a strong encouragement to the builders of Hamilton to organize on similar lines. R. W. G. BOUSFIELD.

CORRESPONDENCE.

[Letters are invited for this department on subjects relating to the building interests. To secure insertion, communications must be accompanied by the name and address of the author, but not necessarily for publication. The publisher will not assume responsibility for the opinions of correspondents.]

A REJOINDER.

TORONTO, Nov. 3rd, 1898.

Editor CANADIAN ARCHITECT AND BUILDER.

SIR,—In the last number of your journal is a paragraph in which you proclaim as "ignorant of that knowledge which is a first requisite of his profession" a City Architect of your acquaintance who placed a lych-gate at the entrance to the grounds of a summer residence.

Once there was a dictionary published in which a crab was defined as a "red fish which walked backwards." This was said by a celebrated naturalist to be a very good definition except that it was not red, was not a fish, and didn't walk backwards.

Your criticism of my "lych-gate" is a very good one, only it is not a lych-gate.

Perhaps a journalist who is ignorant of the meaning of the words he uses might also be considered "ignorant of that knowledge which is a first requisite of his profession" but that is merely a technical ignorance for which there may be hope, but for the lack of intelligence which so stigmatizes one who for twenty years has earned a living at his profession there is no hope.

Yours truly,

C. J. GIBSON.

[As Mr. Gibson's name does not appear in the paragraph to which his letter refers, and he denies having used a lych-gate in the position specified, we fail to understand why he should have felt called upon to don his armor and assume the defensive.—EDITOR C. A. AND B.]

HAMILTON, ONT., October 31, 1898.

To the Editor of the CANADIAN ARCHITECT AND BUILDER:

SIR,—Referring to a leader in the October issue of the C. A. and B.—a lych-gate at the entrance to a summer residence—and why not? I do not know the gate in question, nor do I know the architect of it, though I hope he will let us know his identity. But will you in the meantime please say why you object? I cannot imagine the objection. It is a picturesque feature and serves a useful purpose as a covered seat, and I cannot for the life of me comprehend your stricture. The skill of an architect is to adapt features and details to present day requirements. There may be in the minds of some a superstitious idea that because of its connection with funerals and churchyards it should not be used in connection with a summer residence, but that is all the objection I can see to it, and I entirely fail to see that because he makes use of a lych-gate the architect is ignorant of first requisites, and has made a glaring display of his ignorance. Please let us know upon what the objection is based, and what on earth has caused such an outburst so altogether unreasonable.

Yours truly,

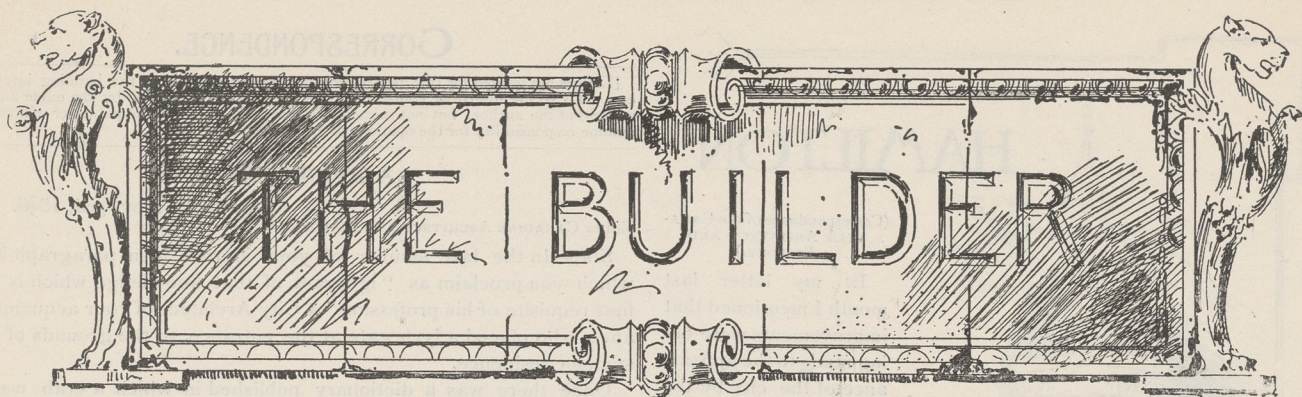
R. W. GAMBIER BOUSFIELD.

Application has been made for incorporation by the Canadian Plate Glass Co., with head offices at Montreal, and a capital of \$10,000.

Mr. Ernest R. Rolph, architect, formerly of Toronto, now hold a position with the C.P.R. at McLeod, Alberta, has recently sustained a severe bereavement by the death of his young wife.

The adaptability of Cabot's Insulating "Quilt," composed cured eel grass, in refrigerator cold storage and ice-house insulation, is clearly explained in a neat circular just to hand from Mr. Samuel Cabot, 70 Kilby street, Boston, Mass., who is the patentee and sole manufacturer of this material.

Application has been made to the Dominion government for the incorporation of the Beaver Portland Cement Company, with headquarters in Montreal, and a capital stock of \$150,000. The company seeks power to acquire lands in any part of Canada containing clay, marl and other substances suitable for the manufacture of Portland and other cements, and to carry on business as manufacturers of and dealers in cement, lime, brick, tile, pipe, artificial stone, etc. The names of the applicants are: James Dobson and Charles J. Webb, manufacturers, both of Philadelphia; Ralph Peverley, of New York, manufacturer; Robert T. Hopper, merchant, Robert D. McGibbon, Thomas Chase Casgrain, William Forrest Robinson, book-keeper, all of Montreal, Que.; Robt. D. McGibbon, Robert T. Hopper and William F. Robinson are to be the first or provisional directors of the company.



[THIS DEPARTMENT IS DESIGNED TO FURNISH INFORMATION SUITED TO THE REQUIREMENTS OF THE BUILDING TRADES. READERS ARE INVITED TO ASSIST IN MAKING IT AS HELPFUL AS POSSIBLE BY CONTRIBUTING OF THEIR EXPERIENCE, AND BY ASKING FOR PARTICULAR INFORMATION WHICH THEY MAY AT ANY TIME REQUIRE.]

Building Construction.

LAST month we stated that, if Mr. Kidder, author of "Building Construction and Superintendence," would permit we would present to our readers a few extracts from Vol. 2 of his work which has just been issued. We are pleased to say we have received the permission sought, and further, through the courtesy of his publisher, Wm. T. Comstock, New York, we have secured reproductions of the illustrations, which are presented herewith along with the accompanying text.

(From page 187.) "LARGE skylights, and those having a gable or hipped roof, can be made much better of galvanized iron or copper than of wood, but small skylights or glazed scuttles, when necessary for lighting an attic room, may be constructed of the latter material when not within the fire district. Such skylights usually consist of a glazed sash through which light is admitted, and the frame on which the sash rests, and to which it is usually hinged. When on a pitched roof the skylight or sash is usually placed parallel with and about eight inches above the roof. The proper method of constructing such a skylight is shown in section in Fig. 167. An opening is first framed in the roof by means

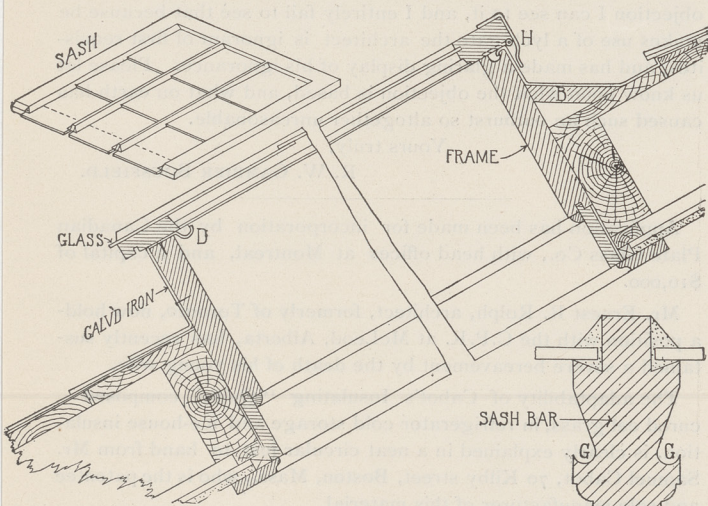


FIG. 167.

of header and trimmer rafters and the frame spiked to the inside of the opening. This frame should be made of 2 inch or $2\frac{1}{2}$ inch plank, $11\frac{1}{2}$ inches wide. Quite often the frame is made of 6 inch or 8 inch rough plank, nailed on top of the roof, the inside flush with the rough opening, and the opening and frame cased with finished boards or ceiling. This method, however, is not as good as the one shown, as the wide planks add to the stiffness of the frame and opening, and prevent the two from separating.

The sash is framed together in the same way as window sash, but should have no cross bars or muntins, and the lower rail should be made so that the glass will pass over it. The rails and stiles should be 2 inches wider than the thickness of the frame, and a $\frac{7}{8}$ strip should be nailed to the underside of the stiles, outside of the frame, to protect the joint. For economy in the glass, and also to stiffen the sash, the latter is usually divided into lights about 12 inches wide, by longitudinal muntins or sash bars, as shown in the isometric view. The glass is usually set in putty at the top and sides, but at the bottom the top of the glass is left free to shed water. If the length of the sash is not more than 36 inches each light should be of one piece of glass. When it is greater than this the lights may be glazed with two or more pieces lapped over each other (about $1\frac{1}{2}$ inches), as shown in the section." ***** "The most important items in connection with a skylight of the kind shown are the flashing and provision for taking care of the condensation that always forms on the underside of the glass if the room below is warmed or occupied. Behind the top of the frame a gutter should be formed as shown, the board B being cut so as to be the highest at the middle and falling to each side. The lining of this gutter should extend well up on the roof, and should be turned over the edge of the frame into a groove which should be graded to drain off the water at the sides. If the sash is to open it should be hinged at the top and a strip of lead nailed to the top rail, as shown at H, to form a counter flashing. If the sash is stationary a simple fillet may be nailed to the underside of the sash above the frame. The sides of the frame should be flashed with tin (or zinc) shingles, the same as around a chimney, the flashing being carried to the top of the frame.

At the bottom of the frame it is better to use a wide piece of galvanized iron for the flashing, as shown at D. As the water forms on the glass it runs down until it strikes the lower rail and then drops into the gutter. For a small skylight the water in the gutter will evaporate so that it will not overflow, but in large skylights provision should be made for draining off the water by means of a small pipe carried through the frame. On large skylights, also, if made of wood, the sash bars should have a cross section like that shown by the enlarged section, gutters being formed at G to receive water that may run down on the sides of the bars. These gutters should empty into the gutter under the lower rail. Unless some such provision is made for receiving the condensation much trouble will be experienced by water dripping on the floor. The sash is usually fastened by a flat iron bar, provided with holes to slip over a pin,

so as to both secure the window and to hold it open at certain distances. The frame and sash should be made of clear well-seasoned cypress, white pine or redwood. When a skylight of the style described above is placed on a flat roof it may be made in the same way, only

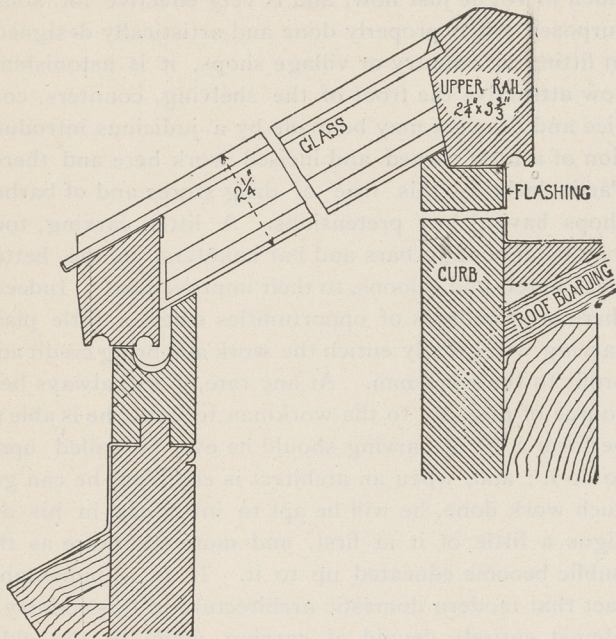


FIG. 167a.

making the frame higher at one end than at the other, so that the sash will have an inclination of about 2 inches to the foot. In flat roofs the frame or curb may be set on top of the roof. Fig. 167a shows another detail, which is in some respects superior for large skylights."

Furring Around Chimneys.

(Page 218.) "In the Eastern States it is customary to furr around all chimneys with 2 x 3 inch or 2 x 4 inch studding, usually set flatways (except in outside walls) as shown in Fig. 186. The object of this is to form a nailing for

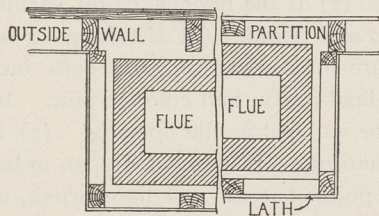


FIG. 186.

the base, chair rail or picture moulding, and also to prevent the cracks that are almost sure to occur when a wooden wall joins a brick one. The studding should be kept at least 1 inch from the brickwork, and should be set plumb, bridged at least once, and the angles made square. If the chimney comes in a brick wall it is also usually furred around in the same way. Fig. 187 shows a way in which a chimney which it is desired to have project on the outside of a frame wall should be

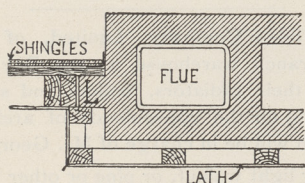


FIG. 187.

built, a four inch lug being carried up on each side of the chimney, as at L, and the boarding and wall covering extending over it. While this construction can easily be made tight, it weakens the wall very much by

cutting the joists and plate, and should only be used with caution and not near an angle of the building. When there is a fireplace the furring is set so as to form a breast wide enough to receive the mantel, and an opening is left large enough to receive the facing around the fireplace opening, the facing being usually set flush with the plaster (see Fig. 169a, Part I). When there is a thimble for a stove pipe a square opening should be framed in the studding opposite the opening, and at least 10 inches larger than the diameter of the pipe. The thimble is generally set so as to project 1/2 inch from the brickwork, and the back of the recess is plastered directly on the chimney, while the sides are cased with wood."

Conductors Carried Inside the Walls.

(Page 167.) "It is often desirable and sometimes necessary to place conductors on the inside of the wall. In such cases 4-inch cast iron soil pipe should be used (cast iron does not rust or corrode as badly as wrought iron) with joints caulked and soldered. Especial pains should also be taken to protect the pipes from frost, and if possible they should be perfectly straight and perpendicular. When practicable it is a good idea to fur the outer wall so that the conductor may be kept entirely inside of the wall line; when this is not practicable a recess should be left in the wall for the pipe, but there should never

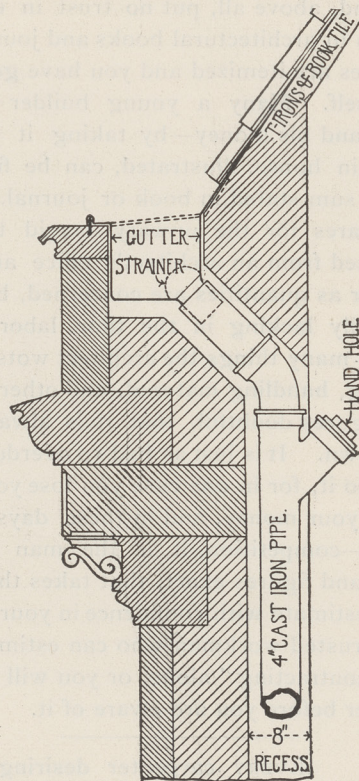


FIG. 147.

be less than 9 inches of wall between the pipes and the outer air, and it is advisable that the space around the pipe be packed with mineral wool. When the building is heated by steam a steam pipe may either be run up beside the conductor or a Y may be placed in the conductor in the cellar and a steam pipe connected with it. The upper end of the conductor should always be protected by a galvanized wire screw, to keep out leaves and other solid substances, and, where practicable, a hand hole should be provided near the top. Fig. 147 shows a detail for an inside conductor in a building designed by Frederick W. Perkins, architect.

The foregoing quotations and illustrations, from the second volume of the work, only convey a very incom-

plete idea of the usefulness of the work to architects, builders and contractors. The volume before us contains upwards of 500 pages, 6 x 9 inches, and is illustrated by over 500 figured and scaled working diagrams, besides a large number of tables and other useful data.

Some Points on Estimating.

It is the close figures that makes the most reliable estimate, and where contracts generally prove satisfactory all round. Every inch of material and every minute of time should be counted, and the figures should always avoid that dangerous risk "that's near enough." There is no such thing in successful estimating as "near enough;" "exactly right" is what is required, then you know what you are doing. Remember always, that it costs more to do the same work in an upper story than it does in a lower one. Doors, same size, equal finish, same time, and furnished with same style of hardware, cost from one to three per cent. more to finish when in an upper story. The higher up, the higher the cost, and what is true of doors is also true of every other kind of work. It is utterly impossible to tell the exact cost of one part of a building by comparing it with the cost of a similar piece of work. You may get near it, but you should not be satisfied with that. It pays the estimator to estimate on everything and to be exact in every estimate. Avoid accepting figures that are not your own, and, above all, put no trust in estimates of cost as given in architectural books and journals, unless such estimates are itemized and you have gone over the figures yourself. Many a young builder has lost his reputation—and his money—by taking it for granted that a certain house, illustrated, can be finished complete for the sum stated in book or journal. These are traps and snares for the unwary—avoid them. Estimates obtained from an architect's office are generally correct so far as quantities are concerned, but are generally woefully lacking in the time, labor and prices. There are so many things the architect wots not of, such as scaffolding, handling material, and other things, that render his figures doubtful, that it is always better to make your own. It is just as bad to overdo an estimate as to underdo it, for in one case you lose your work and in the other your money, and in these days of close—yea, savage—competition, it is the man who figures everything, and figures exact, that takes the work. If you cannot estimate with confidence in your own ability, or have no trusted workman who can estimate, you had better let "contracting" alone, or you will find yourself in deep water before you are aware of it.

Wood-Carving.

EVERY carpenter desiring to advance and better his condition should provide himself with a few wood-carving tools, and should occasionally practice a little at the wood-carver's art. There have been great changes in the style and character of carpenter and joiner work during the last twenty-five years in this country. What was considered fairly elaborate work then would scarcely be tolerated now, and the substitution of hardwood finish for pine and other soft woods renders it absolutely necessary that a workman, to be held in any esteem, should have some knowledge of carving. He need not be an expert, but he ought to be able to carve an architrave block, a rosette, or a newel post, ornament the face of a drawer, or execute any little carved work that may be necessary about hardwood finish in an ordinary house. The price of a small "kit" of carving tools, consisting

of, say, six pieces, need not be more than \$1.50, and a few hours' practice of their use would enable any clever workman to execute plain carving with a considerable amount of success. Incised work, which is a simple matter, and which is performed with a V tool only, is much in vogue just now, and is very effective for some purposes when properly done and artistically designed. In fitting up country or village shops, it is astonishing how attractive the front of the shelving, counters, cornice and drawers may be made by a judicious introduction of a little carved and incised work here and there. Particularly is this true of drug stores and of barber shops having any pretensions. A little carving, too, may be applied to bars and bar counters, in the better class hotels and saloons, to their improvement. Indeed, there are hundreds of opportunities where a little plain carving will greatly enrich the work and bring credit and profit to the workman. At any rate, it will always be a source of pleasure to the workman to know he is able to perform a bit of carving should he ever be called upon to do it; and, when an architect is confident he can get such work done, he will be apt to introduce in his designs a little of it at first, and more and more as the public become educated up to it. It is a lamentable fact that modern domestic architecture in this country is almost entirely devoid of carving, while in the older countries of Europe the most humble dwelling is often adorned with tasteful carvings to some extent. In Switzerland carvings and perforated woodwork are everywhere, in castle and chalet, and the lowliest cot often contains gems of fine carving.

QUESTIONS AND ANSWERS.

"J. C.," Kingston, Ont., writes: "What is the best material to use to fill up the joints in a maple floor that has been laid for some five or six years and has shrunk away? It is a hospital floor and has to be waxed, and the filling of cracks ought to be same color as present floor, so as not to be conspicuous.

ANSWER.—(1) If the floor is badly shrunk, it should be taken up and relaid. (2) If taking up is impossible, and joints are more than one-sixteenth inch open, fill with white lead putty, and color to suit. In a week the joints will be as hard as the flooring. (3) If joints are not more than one-sixteenth inch open or less, clean out well with pointed tool and hair brush, coat over the whole floor with Wheeler's patent wood-filler, or other reliable wood-filler, seeing that the joints are filled up flush. Let stand about an hour, then rub (across the grain) with excelsior, making sure the joints are well filled. The rubbing must be done thoroughly, and continued, until the work seems dry. This done, let the floor stand for 24 hours, then—for a hospital—shellac the floor, and you will have a smooth, unbroken floor. Before applying the wood-filler, thin it down with spirits of turpentine to a thick cream consistency; apply with brush.

The Gurney-Tilden Company, Limited, of Hamilton, Ont., have opened a branch warehouse at 134 Bay street, Toronto, where a stock of their radiators, boilers and stoves will be kept constantly on hand for the convenience of architects, plumbers, etc. This branch will be in charge of Mr. George H. Taylor.

A nice stain for light walnut, or pine or other light woods, can be made by dissolving permanganate of potash in water, say one drachm to three ounces of water, or in proportion to give the right shade. Go over the wood twice, wait five minutes, then wash the stain with clear water, let it dry, and finish as you like. For dark walnut mix the stain darker by using less water, or put on more coats. Pencil in the dark veins with acetate of iron.

CAUSES OF FAILURE OF BRICKWORK.

A WELL known British authority, writing on this subject, says: "It would be tedious to refer to particular cases of failure of brickwork, directly and indirectly, in walls and piers. They may generally be roughly summarised under the following five categories: (1) Failures may have arisen from exaggerated ideas of the loads which may be safely imposed upon brickwork as derived from single-brick tests. (2) From want of discrimination between the tested strength of single bricks or brick cubes, and that of brickwork, and likewise between the difference in strength of different qualities and bonds of brickwork construction. (3) From want of appreciation of the weakening effect (a) of unhomogeneous construction, (b) of high ratios of height to thickness of walls, pilasters, imposts, and piers, and (c) of the weakening influence of wet weather during building upon the brickwork, and its perpetuating soft interior mortar used in levelling up the bed-joints throughout the courses, especially when bats and brick refuse form a hearting. (4) Want of recognition of all the external sources of abnormal and eccentric loads and strains, as from floor joists, floor girders, bearing upon one side, or upon two adjacent sides, or even upon opposite sides, but unequally, owing to unequal opposite loads; from unequal spans, or unequal unit loads upon equal spans, or thrusts from roof trusses, wind force, or arising from the nature of the usage of the building, as in miscellaneous storage of warehouse goods, disturbing energy of oscillation and vibration of heavy running machinery, engines, machine tools, etc. (5) Want of recognition of associations of contributory weaknesses, as damp foundations not being reinforced by strong brickwork, but instead the weakness of the brickwork thereby becomes weaker still when not reinforced by strong foundations; wrong use of the inverted arch in foundations.

The greatly reduced strength of brickwork as compared with that of the component single bricks depends on the difference of the conditions prevailing in each case. These differing conditions may be distinguished as the "critical conditions," and they may be summarised thus under transverse tension and shearing stresses peculiar to brickwork, which may be characterised as blockwork—i.e., composed of independent individual blocks cemented together—as distinguished from work of a homogeneous nature, such as concrete work. The critical conditions are caused as follows:

(a) By unevenness of the supporting bed-joint area, which is broken up by prominences and vacuities of the cross-joints and of the filling spaces, which are caused by the exigencies of the lateral and cross-bonding arrangements of the bricks and joints in the adjacent courses of walling.

(b) By these vacuities being more or less filled, and frequently only partially filled, with compressible mortar, whereby the bricks are supported, really, only by a few isolated points and areas of the bedding joint surface. Those isolated areas are unevenly and variously distributed at different points, and may aggregate only a small fraction of the whole bed-joint area. When these supporting points are accumulated to a larger or less extent on one side than on the others of the cross-section, the conditions of eccentric loading are set up as effectually as if the load were placed eccentric to the axis of the pier. In such a manner the successive stages of the destructive process culminating in ultimate failure

of brickwork may be traced with variations in details depending on the special conditions involved in any particular case. It may be assumed as a general condition that incipient defects of materials or of the mode of structure cause weakness of brickwork.

The initial weakness in brickwork is always local, and in the case of piers the local weakness is very rarely equal all round the section. Such local weakness is equivalent to eccentric loading, which reduces the strength of a pier by one-half to two-thirds of the normal eccentric loading strength.

A chain is said to be no stronger than its weakest link, so likewise in masonry the bed-joint mortar forms the link which has independent action in coursed masonry. Its main resisting function is that of compression. The destructive yielding of mortar in coursed masonry is not reinforced appreciably by its cohesive and adhesive properties, as these are inferior elements in lime mortar. The strength of brickwork therefore bears a close relation to the compressive resistance of the mortar in which it is laid. Portland or hydraulic cement gives larger results in proportion to its increased strength compared with lime mortar.

Viewing these hints of the details of a destructive process may help to illustrate important points of difference in stress action, whereby the compressive strength only of single bricks gives exaggerated data inapplicable directly to the strength of brickwork. The principal exaggeration of the results of testing of single bricks is due to the avoidance of the "critical conditions" of failure by tension and shearing. These critical conditions are not allowed any place in the details of testing single bricks, or in their stead half bricks, or fractional brick cubes, by the customary methods of testing."

PERSONAL.

Mr. Samuel Gooding, a retired builder and respected citizen of Toronto, died suddenly in that city a few days ago.

Mr. Hugh Ryan, the well known contractor of Toronto, who has recently returned from the Crow's Nest Pass, is dangerously ill from Bright's disease.

Mr. James Brown, a well known contractor at Ottawa, died in that city a few days ago. The late Mr. Brown had been a resident of Ottawa for 40 years.

Mr. William Tye, chief engineer of construction, Canadian Pacific Railway, was united in marriage on October 12th, at St. Peter's Cathedral, London, Ont., to Mabel, only daughter of E. Maloney of that city.

The new drill hall at Halifax, for which Mr. John E. Askwith, of Ottawa, is the contractor, is nearing completion. The building is 315 x 150 feet, with a drill space of 250 x 110 feet. Massive steel girders and heavy steel sheeting have been largely employed in its construction. The cost of the building will be about \$275,000.

Mr. Collingwood Schrieber, chief engineer of the Department of Public Works, has notified the contractors for the interprovincial bridge across the Ottawa river at Ottawa that in the construction of the piers opportunity must be afforded him of inspecting the concrete after it has properly set. This precaution is insisted upon in view of the height of the piers and of the recent accident at Cornwall.

The Ottawa Art Association commenced its work for the present season on the 1st inst. under most favorable conditions. Following are the officers of the association for 1898 and 1899: Honorary president, Sir Wilfrid Laurier; president, Rev. W. T. Herridge; first vice-president, Mr. David Maclaren; second vice-president, Mr. John Manuel; treasurer, Major Gourdeau; secretary, Mr. Frank Beard; executive committee, Hon. J. I. Tarte, Hon. R. R. Dobell, Hon. E. H. Bronson, Messrs. C. Ross, J. F. Taylor, F. Checkley, John Christie, F. A. Dixon, M. C. Edey, A. W. Flecke, A. Frechette, Warren Green, Geo. L. Orme, Warren Y. Soper and John W. H. Watts.

SIZE ON OLD WALLS.

A SUBSCRIBER of the Painters' Magazine asks why smooth, white coated plastered walls that have remained so for a number of years, that have been frequently washed with soap and water, will form a coating (by reason of this special washing) from which regular glue size will not prevent wall paper from cracking and peeling off. Is there any size which will hold paper on such walls?

This, says our contemporary, is not by any means an every-day question. The fact is that in our experience we never came across such a situation. Our answer will have to be in the main a theoretical one. The conditions are somewhat peculiar, for the reason that soap will not so affect all walls. If the white coat, or smooth coat of plaster, be mostly plaster of Paris, as is usually the case, this condition would not come about, no matter how much washing the walls had with soap and water.

On the contrary, if the smooth coat was composed to a great extent of "fat lime," we can, perhaps, see how this condition would arise. By the repeated applications of soap and water, a chemical action might take place, between the excess of lime in the plaster and the soap, forming a lime soap or sort of calcium oleate, which is absolutely impervious to water. In time this would become very hard and glassy, and, we think, would be very likely to throw off any paste or water size, whether made with glue or any like substance. It is possible that the paper hanger's "hard oil"—gloss oil—would hold to that surface. We suggest two modes of treatment. Wash the affected walls with a water containing a small percentage of sulphuric acid, not much, just about enough to well sour the water. Give them a good washing, and the next day wash off with clean water, and proceed with a common glue size, or, we doubt not, but paste will hold, without sizing.

The other course of treatment would be to go over the walls with a very coarse sand-paper or any like material; in that way slightly scratching or harrowing up the surface, to allow for a good anchorage for the size, paste or hard oil which would afterward be applied. The latter course is the easier and quicker gotten through with, and I think it would answer. The washing of the walls with acid would certainly answer the purpose. I wish the questioner would advise us as to his results.

A master painter of wide experience, to whom the question was submitted, gives the following answer: Plastered walls that have for a number of years been frequently washed with soap and water offer a naturally repellent surface for the reception of wall paper when simply treated with regular glue size. The accumulated caustic chemical properties upon the walls attack and work out through a regular glue size of ordinary thinness, and the disruption of the size carries with it the cracking and peeling complained of. A great deal of importance should be attached to making and applying the size upon walls, and most emphatically is this true in the case of walls calling for a special treatment. For a size intended to cover such walls as described by our "Subscriber," take $\frac{3}{4}$ lb. of white flake glue, the glossy semi-transparent kind, and put it to soak over night in enough water to nicely cover it, making due allowance for the water which the glue will take up. In the morning bring it just to the boiling point, when it should be dissolved. Then take 4 ounces of pulverized alum and dissolve in a quart of boiling water. To 2 gallons of

clean soft water now add the alum water and the glue. The alum will harden the size, and act as a "fixer," holding in sturdy check any disturbing substances which the alkali-smear and saturated wall may contain.

From Subscriber's description we are led to infer that the walls are in a good state of preservation. Otherwise we would advise making the size of a stronger percentage of both glue and alum, as for example: One pound best white glue, first soaked in cold water and then dissolved in hot, as previously described; three-fourths pound of pulverized alum, dissolved in quart of boiling water. After mixing the glue and alum water, add cold water to make six quarts of size.

The cracking and peeling of wall paper is not always due to negative or badly conditioned walls, and it is therefore not always a safe plan to ascribe the breaking up of the paper to the unadaptability of the wall. The paper hanger may use his paste too thick or too thin; also, he may put on too much or not enough. Or, again, he may fail to brush the paper down firm enough. The paper itself may be at fault. Some papers, by virtue of their brittleness, are more liable to crack than others. A paper which, when wet, will expand the most, is liable to crack, because in drying the shrinkage is often so great as to break the fibers. All such factors deserve study when considering a problem like unto that which our subscriber seeks to be enlightened upon.

SCIENTIFIC PLUMBING.

THE following extract of an excellent address given by Professor J. G. M'Kendrick when opening the exhibition of plumbing work and sanitary appliances, held in connection with the recent Plumbers' Congress at Glasgow, will well repay careful reading.

"Some may ask, why should the public be interested in plumbing more than in the work of the carpenter, or the mason, or the slater, or the plasterer, who also have to do with the construction of our dwellings? No doubt we depend on all the trades, but little consideration shows that, so far as our comfort and health are concerned, the plumber has it in his power to influence us more than any other tradesman. When we consider the plumbing work to be done on the roof, the arrangement for carrying off rain water, the efficient construction of waste and soil pipes, the conveniences of the closet and the bath-room, the distribution throughout the house of gas and water, the system of house drainage, the means of ventilation, we see at once how the plumber more than any other tradesman can make or mar a house. It is, therefore, of great importance that he should be well educated, both in a general way and technically for his special trade, and it is only reasonable that the public should have some guarantee as to his efficiency.

I have no doubt this exhibition must also illustrate some of the advances made in plumbing and sanitary appliances during the last ten or twenty years. For the more ordinary article of every-day use there has been an enormous advance, so that almost everything we now use is better suited for its purpose than its representative of say, twenty years ago. So has it been with the work of the plumber and with sanitary appliances. The use of drawn piping instead of hand-made pipes has made it possible now to have thoroughly tight joints. The modern bath room, in its simplicity and durability, is now almost perfection. All its appliances are handy and fitted for use, and, as a rule, the room is not now a

dark place fusted away into an odd corner, but in any well contrived house it is large and airy, well lighted, and in a convenient position. The modern closet, by the substitution of earthenware for metal, by flushing, and by efficient trapping, is a very different thing from what it was twenty years ago, so that in some of its forms it also is almost perfection in the way of being cleanly and of being severely cut off from all source of contamination from the sewer. In the old day pipes, both for gas and for water, were often placed in the most awkward positions, frequently so placed that if anything went wrong it was a serious business to reach them for purposes of repair. Now they are all placed in convenient positions. There is a method for the distribution of gas pipes in every well constructed house, now easily understood, and water pipes are open to inspection, and indeed, are sometimes even ornamented.

Consider also the enormous advance in the method of trapping, by which the risk of communication with the sewer is reduced to a minimum, and the arrangement now carried out for thoroughly ventilating sewers without the danger of contaminating the air of the street or of the house itself. The arrangements also for the storage and distribution of supplies of water to town and village have also greatly improved, so that now, in any well regulated system, it is next to impossible for sewage to enter the current of water.

These, and many other improvements, are visible even to outsiders like myself, and I have no doubt that to the minds of many who listen to me other examples of advancement will occur.

I cannot help noticing that even in humble dwellings sanitary arrangements are now made to an extent not dreamt of twenty years ago. In our great cities, even in the slums, modern conveniences are being introduced into every dwelling; in our country villages, to which the town dweller goes for summer quarters, there to recruit his exhausted energies by rest and recreation and fresh air, every cottage almost has now the appliances of the modern plumber; and the ubiquitous bicycle has improved such things in every little country inn by the wayside.

Now, what is the meaning of all this? Does it not mean that, in common with many other trades, the plumber has become more scientific? Here and there in the craft have arisen men of inventive ability who have recognized the defects of old methods, and who, with scientific instinct, have invented better. There is all the difference in the world between a man who works away, year in and year out, by rule of thumb, and the man who looks at things from a scientific standpoint.

Now, I don't wish you to be frightened by the use of the word scientific. There is really nothing mysterious about what we term science. Many, if not all her problems are mysterious, but science is simply knowledge of external things. Investigate their properties and the laws that regulate them. It has been well called "organized common sense." Science has to find out the laws that govern the outer world, the nature of things, the facts of nature, if you choose so to express the scope of science. The moment a plumber tries to recognise the exact nature of a particular phenomenon with which he is familiar in his trade he becomes scientific. He applies principles to the execution of his work. It is his knowledge of things and of the laws of nature that regulate things by which he is guided.

This exhibition, however, is not intended only to in-

struct the public, but to stimulate invention among the younger members of the craft of plumbers. Permit me to say a single word to them. In the construction of all kinds of appliances efficiency is usually combined with simplicity. For certain purposes, of course, machinery must be complicated, but as improvements are effected it always tends to become more and more simple. This is consonance with nature. She always brings about important results by simple means. This appears to be especially the case in mechanics, and as all the physical phenomena in the universe are ultimately mechanical the principle holds good throughout. Movements of matter, whether it be of the molecule or the planet, occur with the least possible expenditure of energy in the most direct line, and in the shortest possible time. There is no waste; there is simplicity; there is parsimony. So true is this that if a philosopher gives a very complicated account of a phenomenon, involving intricacies that also baffle comprehension, we may be almost sure his explanation is wrong. Nature probably attains her object in a much simpler way than the philosopher at first thinks, and it is the business of someone to find this out. Therefore the lesson for inventors is to attain their end by simple means.

Before I close I should like to allude to the delight one feels in looking at a well made bit of apparatus, efficient for its purpose. In my laboratory, as a physiologist, I have to use delicate appliances, and, therefore, I can, to some extent at all events, enter into the feeling of the workman who has a pride and pleasure at looking at a bit of good mechanical work. The sight of an engine, a modern turning lathe, with its many exquisite mechanical devices, even of a well made stop-cock, or a good well turned screw; or, to come nearer home, a well-made bend in a pipe, a good solder joint, or a good piece of lead bossing, always gives rise to a certain feeling of satisfaction.

Young workmen, and it is to these I would address my closing words, should aim at efficiency, thoroughness, and, in short, at all the qualities that distinguish a good job from a bad one. A bad piece of workmanship is a moral offence, and it will not be forgotten, although it may be hidden away where no human eye can see it. Bad work by a plumber may bring about dire results to others; at all events, it will inevitably deteriorate the man's own character. Good work well done will, of itself, yield much happiness.

A sandstone slab measuring 7 x 13 feet, 18 inches thick, and weighing 10 tons, has been brought from Nova Scotia to Sherbrooke, and is to be placed above the main entrance door to the new Sun Life building.

Mr. Alexander Bremner, of Montreal, has recently acquired the patent right for Canada of Baker's improved plaster board, and has fitted up a large factory capable of turning out large quantities of this material, the useful qualities of which are testified to by some of the leading architects and builders of Montreal.

The negotiations for the purchase by an English syndicate of the C.P.R. cement works at Vancouver are proceeding satisfactorily, and are expected to be concluded at an early date. It is said to be the intention of the new owners to increase the capacity of the works from 12,000 to 50,000 or 100,000 barrels per year, and ultimately to 1,000,000 barrels per year. There are said to be but few cement works north of San Francisco, and the demand for the material in the territory along the coast is said to reach 600,000 barrels per annum. Most of this demand is at present supplied by England. The syndicate above mentioned will endeavor to obtain control of this trade, and also to supply the Pacific Ocean Islands, Australia, China and Japan, for which their works will be favorably situated, having ready to hand the transportation facilities of the C.P.R.

CHIPS.

Mr. Lacroix, building inspector Montreal, has publicly denied the rumour that the new theatre building on Guy street is insecurely constructed.

Mr. F. J. French, one of the inspectors of paving for Toronto, has recently invented an interlocking paving brick, for which he has applied for a patent.

A handsome new building is in process of construction at New Westminster, B.C., for the Bank of British Columbia, from plans prepared by F. N. Rattenbury and J. G. Tiarks, architects.

The decoration of the walls and ceilings of the new Bank of Commerce Building at Montreal has been commenced by Mr. W. T. Scott. Numidian marble will form the foundation for these decorations.

Messrs. J. A. Ballantyne and H. Conn, of Ottawa, have recently purchased a site for a brick manufactory at Billings' Bridge. It is their intention to install machinery for the manufacture of all kinds of building brick.

Rev. C. Harper Shortt delivered a lecture on the 4th inst. before the Women's Art Association of Toronto on "King Henry's

Gothic." The lecture was designed to awaken a deeper public interest in architecture.

The following persons have recently passed the plumbers' examination at Vancouver, B.C.: R. F. Scott, C. Weeks, O. Laursen, W. H. Walpole, B. Weeks, M. H. Thompson, A. Paton, H. McQuarrie, W. H. Braden, W. K. Blackmore, A. Green, A. Shead, S. Mortimer, P. G. Moran, A. J. Morton.

A meeting of the builders connected with the Montreal Chamber of Commerce was held recently to consider the new city charter and municipal by-laws. The meeting decided to recommend that Chapter XII, Art. 1st, of the new charter read as follows: "That the bureau of assessors be composed of eight persons of practical experience in building construction, as follows: One architect, one real estate agent, one civil engineer, and five practical builders." It was also resolved that Sec. 9, Chap. 28, page 115, of the new charter shall read as follows: "That the bureau of arbitration be composed as follows: One city assessor and four commissioners named by the court or a judge in Chambers, of which one is to be a lawyer, one an architect, one a practical builder, and the other a real estate agent. The above commissioners in expropriation to select one of their number to act as president."

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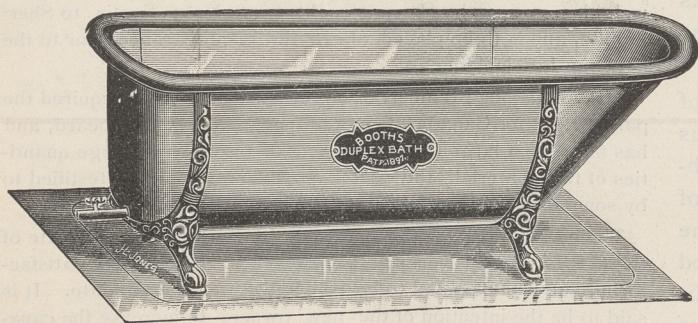
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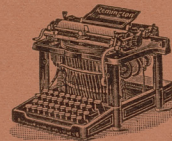
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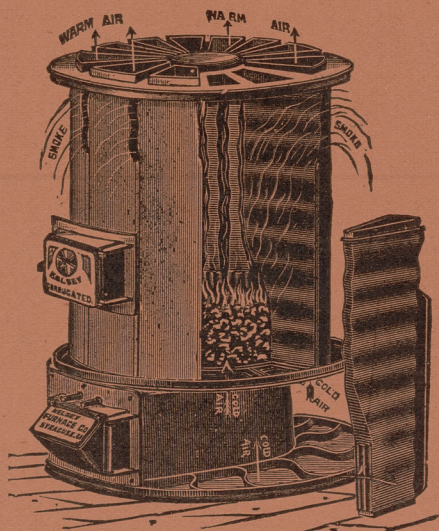
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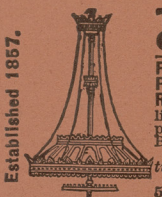
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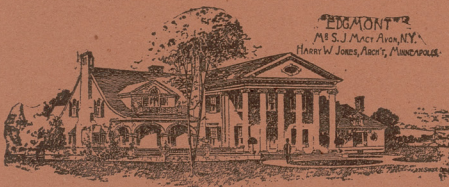
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